The next Annual Meeting of the Michigan State Medical Society will be held in Detroit, June 11th and 12th, 1903

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TABLE OF CONTENTS

ORIGINAL ARTICLES

PRESIDENT'S ADDRESS, BY LEARTUS CONNOR, DETROIT 37
THE VALUE OF THE EXAMINATION OF THE BLOOD TO THE GENERAL PRACTITIONER, BY W. K. WEST, CALUMET,..... 43
BACTERIAL TOXINS, BY VICTOR C. VAUGHAN, ANN ARBOR.... 50
FLOATING AND MOVABLE KIDNEYS, BY RICHARD R. SMITH, GRAND RAPIDS..... 55
CALCULUS IN THE KIDNEY AND URETER, BY THEODORE A. MCGRAW, DETROIT 57
NEW GROWTHS OF THE KIDNEY, BY ALDRED SCOTT WARTHIN, ANN ARBOR 62
ACUTE KIDNEY INFECTIONS, BY THEODORE A FELCH, ISHPEMING..... 70
SURGERY OF THE KIDNEY IN TUBERCULAR CONDITIONS, BY W. H. HAUGHEY, BATTLE CREEK..... 73

DISCUSSION

BY HENEAGE GIBBES, DETROIT.... 75
BY E. B. SMITH, DETROIT..... 75
BY F. W. ROBBINS, DETROIT..... 76
BY P. M. HICKEY, DETROIT 76
BY J. H. CARSTENS, DETROIT..... 76
BY J. C. WILSON, FLINT 77
BY T. A. MCGRAW, DETROIT. ... 78
BY W. H. HAUGHEY, BATTLE CREEK 79

EDITORIAL

THE PRESENT STATUS OF MEDICAL REGISTRATION IN MICHIGAN 80
THE REORGANIZATION OF THE AMERICAN MEDICAL ASSOCIATION AND RECIPROCITY FOR THE LICENSE TO PRACTICE MEDICINE, BY EMIL AMBERG, DETROIT..... 82
RECIPROCITY AMONG THE SEVERAL STATE MEDICAL SOCIETIES..... 83
ON THE ETIOLOGY OF TUBERCULOSIS BY HERBERT M. KING, GRAND RAPIDS.... 83
THERAPEUTICS OF THE X RAYS, BY P. M. CAMPBELL, DETROIT..... 84

REPORTS OF COMMITTEES

COMMITTEE ON LEGISLATION..... 85
COMMITTEE ON NATIONAL LEGISLATION..... 89
CONSTITUTION AND BY-LAWS..... 90

OBITUARY

JEROME M. SNOOK, KALAMAZOO... 89

Original Articles

PRESIDENT'S ADDRESS.

THE MICHIGAN MEDICAL SOCIETY.

It's First Eighty-three Years—Present Wants, and Suggestions for their Supply.*

LEARTUS CONNOR,
Detroit, Mich.

PART II.

The second stage in the evolution of the Michigan Medical Society started with a meeting held at Ann Arbor, March 30th, 1853, and ended with an aborted meeting at the same place March 29th, 1860. The abolition of all medical laws by the Legislature in 1851 threw the profession of the State upon its own resources. Feeling the need of some sort of organization for mutual aid, inspired by a desire to assist the young Medical Department of the University (started in 1849); catching something of the enthusiasm of the young editor of the first *Michigan Medical Journal,* Dr. Edmund Andrews, the profession organized after the fashion of the conventions of that time.

New wants had come to the profession, and it planned for their supply. By its medical college it had entered upon a systematic training of its future members. By its medical journal it sought to stimulate the older men to larger observation, more frequent record of their work, and the encouragement of local medical societies.

Happily, the editor of the *Peninsular Medical Journal* was chosen Secretary, and continued such till his removal to Chicago three years later. He was also demonstrator of anatomy in the medical school, and instructor in comparative anatomy. A man of exceptional ability, clear in thought, clean in life, a marked man among kings, he started the enterprises well.

*Read at the Meeting of the Michigan State Medical Society, held at Port Huron, June 26 and 27, 1902

Of the scholarly ability, the indefatigable industry and upright life of his successor, Dr. E. P. Christian, late of Wyandotte, all who knew him will speak in exalted terms. As Secretary he faithfully served the Society till, amid the financial earthquake of '59 and the ominous rumbling of the approaching storm of the great Rebellion, it closed its doors.

Its Presidents were all men of mark—in order as follows:

George Landon, of Monroe;
Henry Taylor, of Mt. Clemens;
Zina Pitcher, of Detroit;
J. H. Beach, of Coldwater;
N. D. Stebbins, of Detroit;
J. Adams Allen, of Kalamazoo;
H. B. Shank, of Lansing.

Its eighth annual meeting was called at Coldwater, January 18, 1860, but, so few being present, it adjourned to Ann Arbor, March 29th, when, discouraged by the few present, it disbanded. Its total membership was 115, and its work admirable, worthy of the State at that time. The presidential addresses were thoughtful forceful, discussion of topics pertinent to professional interests. So far as records show, a singular unanimity prevailed—the more surprising because of the heated contests of both former and later years.

Its papers covered a wide range of topics; especially rich were they in observations upon the meteorology and health of the several localities—topics now covered by health and sanitary boards. It originated movements which finally resulted in the proper care of the insane in institutions owned and conducted by the State instead of by counties; movements for the proper registration of deaths, births and marriages; for State and local health boards; for an anatomical law so that an inquiring medical student might study human anatomy without running the risk of being mulct of two thousand dollars or spending two years in a cell with a midnight assassin.

Among the obvious causes of its downfall were:

1. The commercial disasters of 1857;
2. The growlings of the approaching civil war;
3. The natural operation of the feuds of former years;
4. The lack of stimulus from opposition;
5. Last, but not least, the absence of the sustaining interest of many local societies.

From the fact that the Society breathed its last at Ann Arbor it would seem that the Medical Department and its friends were not anxious to prolong its life.

The *Peninsular Journal* had struggled in conflict with its rival, the *Independent,* and finally combined with it and then dying—all of which must have been depressing.

While the election of Dr. Pitcher to the Presidency of the American Medical Association, at its first Detroit meeting in 1856, gratified his friends, it rendered his enemies the more bitter and so failed to advance the State Society.

During these seven years the profession learned to conduct a medical society without State support. ('Tis interesting to note that the report of its last meeing was published at State expense, doubtless because so many members were common to both Society and Legislature, and interested in pushing certain matters in each, as the completion of the Kalamazoo Asylum.) As a leader in these bodies was Dr. Foster Pratt, who for many years served the medical profession with marked

ability in all its notable movements. He was one of the ninety thousand men sent by Michigan to defend the Nation's life. With him went a host of doctors whose written and unwritten work show that this Society failed not its country in time of peril.

The third period in the evolution of the Michigan Medical Society began with 1866, and now at the end of thirty-six years is incomplete. Many of its founders are still with us to give the boys pointers along the line of medical and surgical work. We need their mature judgment and wise counsel in solving the problems of reorganization before us.

During these thirty-six years our records show 1,478 members admitted, 868 removed, resigned or died, leaving a net result of about 610.*

Among the conditions favoring the formation of this Society we note: (1) The closing of the civil war left many energetic, wide-awake young doctors in Detroit without adequate clientelle—through a medical society they saw a chance. (2) Efforts to remove the Medical Department of the University to Detroit, though long continued, had failed, while they advertised the waste of clinical material. (3) Clinical instruction as the leading feature of the coming medical education was everywhere emphasized.

With such conditions it is easy to see that personal ambition and economic thrift urged the establishment of a medical college in Michigan's commercial metropolis. After the example of the founders of the University Medical School, the promoters of the enterprise began with a medical journal, the *Detroit Review of Medicine and Pharmacy;* then followed, the same summer, the Michigan Medical Society, and, lastly, in 1868, the Detroit Medical College.

Naturally, the Medical Department of the University exerted itself to retain and increase its hold upon the profession, and so its friends took active part in the Society. To offset the *Review of Medicine*, the *University Medical Journal* came into life. Through these, and other, agencies, friendly contests waged in and about the Michigan Medical Society, making it a lively affair till, by processes of evolution, both were fully occupied in other directions, when both the *Review* and *University Medical Journal* disappeared, as in any sense exponents of the separate medical schools. All parties had need of the Michigan Medical Society, hence its increase in size and influence.

Meantime the methods of the old time political convention, with its parliamentary contests; its personalities; its oratorical play to the galleries, became inadequate. After much discussion, in 1887, its scientific work was separated from the legislative, executive and judicial, and done in three sections, under the guidance of separate chairmen and secretaries. Thus more time was had for papers and fuller discussions, as the published transactions abundantly demonstrate. Further, this change multiplied offices, and so to a greater degree appeased the hunger for such diet. As scientific discussion rarely induces loss of temper, the sections disposed of much surplus energy in a peaceful manner.

Of the Presidents, eighteen are dead and seventeen living—one, Dr. J. H. Jerome, was elected twice, in 1867 and 1881—doubtless presidential timber was scarce in '81, as during the first period

*Adding the membership of the three periods we have total of 1,656 for 83 years.

when Dr. Zina Pitcher was fourteen times President.

Of Secretaries we have had four: Dr. George E. Ranney for the first twenty years, then in order, Drs. George Duffield four years, C. W. Hitchcock six years, Collins H. Johnston four years, and A. P. Biddle two years; the first a soldier in the civil war, the last in the Cuban war.

During its first period the Michigan Medical Society limited itself largely to the execution of State laws regulating the practice of medicine, doing little to develop its members along scientific or literary lines, or to foster, encourage or develop county societies.

Its second period stimulated members to observe, record and publish facts relative to local climate, epidemic diseases, public health, as well as those relating to private practice. It strongly insisted upon the observance of the code of ethics, American Medical Association; it encouraged the *Peninsular Medical Journal;* it urged the Medical Department, University of Michigan, to a higher preliminary requirement and better professional training; but it remained a large local society, doing nothing to foster, encourage or develop local medical societies.

Its third period began with an impulse to utilize the clinical advantages of Detroit, but it promoted the development of State Insane Asylums in lieu of the wretched county lazzar houses for the herding of the insane; it initiated the movements that led to the formation of proper state and local health boards, proper registration of deaths, births and marriages; some sort of restriction of free trade in medical practice, to those competent for the work; and numerous other enterprises having for their object the application of the latest scientific knowledge to the betterment of the physical lives of our citizens.

Its jealousy for membership at once competent and clean drew it into a controversy relative to the educating of homeopathic students by the regular faculty of the University. While it had no legal penalties with which to enforce its ideas, a simple disapproval of the proposed scheme brought upon its head a veritable storm of thunder and lightning compared with which the terrors of Mount Sinai was a summer breeze. The final result was the establishment of a sectarian medical school entirely distinct, so that it cannot be said that our own school gives aid and comfort to such as seek to make the world believe "a part equals the whole."

These and allied activities are at once the index of virile force in the Michigan Medical Society and a stimulus to its further development.

Papers and discussions were greatly multiplied by the sections, thus attracting more scholarly persons and raising its scientific standard. During both periods it was a voluntary association, differing from local societies by drawing from a larger field, holding less frequent but longer sessions, and giving aid and comfort to those disgruntled with the local society or unwilling to co-operate therewith.

In spite of the stimulus of the most remarkable period in all medical history, our growth in numbers from 100 to 610 during thirty-six years has been disappointing. It is especially discouraging that members drop out, by failure to pay dues or because they find the Society unprofitable. Alabama, with but 1,700 physicians, has 1,200 in the State Association. Baldwin County, 125 miles long, in which are but nine physicians, eight belong to the County Society.

The present wants of the Michigan Medical Society are three:

First—A membership of three thousand, and provision for keeping pace with increasing population.

Second—Sixty County Medical Societies, instead of fifteen, with plans for increase to the limit.

Third—A force adequate to the growing of a live medical society in each district, and bringing each doctor of that district into active fellowship therewith.

How shall these wants be supplied?

Time forbids a complete answer, were data available; to aid each in formulating such answer, we present the following suggestions:

1. Work, tactful, persistent, by intelligent representative persons, is absolutely essential. To secure these the Society must be divided into Councilors, Delegates and Members; the first attending to the business, the second to the scientific work; thus we ensure a small body of representative men for planning details and supervising their execution.

2. The Society will avoid all political entanglements because it has learned that they develop antagonisms from the "outs," enervate the "ins," or reduce both to the level of the lowest. Far better retain the method of our past two periods and relegate to special boards all police duties in regulating the practice of medicine—said boards representing the several sects patronized by the people. We may do much to secure the best individuals on the boards and compel their obedience to the law. Such independent position will enable us to lead in all movements for the application of science to the common good, and have our leadership recognized.

3. For fifty years the Michigan Medical Society has been weak, in an organization, so compacted that when one suffers all suffer; when one prospers all prosper. Since such can spring only from correct sociological principles, and be perpetuated by their continuance, education is our watch-word. This must be persistently continued along three lines: A—The perfecting ourselves in professional ability; B—mastering the best methods of cooperating for common aims (Medical Sociology); C—teaching the laity how to apply scientific knowledge for their advantage.

Our past shows prosperity as one or all of these have been employed. Before 1851 the Society published nothing, and so its educational power was at a minimum—its opponents published much, to our disadvantage. From 1851 to 1870 the Society utilized the medical journals. Since 1870 it has issued yearly volumes. Both methods of educating promoted our work, increased enthusiasm, and raised our standing.

We have augmented our knowledge, educated and gained influence with the laity by efforts to establish and maintain boards of health; registration of vital statistics; regulation of the practice of medicine; to secure the proper care of the insane, deaf, dumb; to establish and maintain hospitals, dispensaries; to obtain such school buildings as would better fit them to train young children to sound citizenship; to teach the correct principles of drainage, sewerage, water supply, plumbing, heating, etc. For this purpose we have used the lay press as well as medical and other scientific journals.

Just now the question presents: Cannot we increase our educational power by changing our official form of publication?

New York and Illinois tell us in emphatic phrase, supported by facts and

figures, that their state society medical journals have increased their incomes, multiplied their membership, and augmented their enthusiasm, far beyond their wildest dreams. May not this modern method serve us equally well?

It is suggested that this meeting, by specific resolution, direct the Publication Committee to issue the transactions in the form of a monthly journal, to be known as THE JOURNAL OF THE MICHIGAN MEDICAL SOCIETY. To aid this committee it is suggested that four members be appointed till their successors be elected. To this Board of Publication, all matters relating to the expenditure of money shall be referred, without debate, and on it shall be placed all responsibility for the JOURNAL management. It shall organize immediately after appointment, hold at least one meeting, and submit an annual report of its acts.

4. Inquiry respecting the early death of many local societies reveals the conviction that the cause was "too big a dose of unworthy members." Possibly wise missionary work might have saved both individuals and society. Our predecessors paid much attention to membership, and we reap the reward. We may not license to practice, but we can assure in our members fitness for work much higher than that exacted by a legal examining board; one toward which the latter may aim, and thus insure, for the future, doctors better than ourselves—a course promotive of the highest good of this Society.

5. It is suggested that this meeting appoint a Councilor from each Congressional District, who shall hold office for six years or till his successor be elected, so arranging the terms that two shall be elected yearly thereafter. Their duty shall be the promotion of new county societies, reviving old ones, and adjusting misunderstandings. The expense of this work shall be paid by this Society, to the limit of $25 yearly to each Councilor. The Councilors shall organize immediately after appointment, hold at least one meeting, and submit to this Society an annual report.

6. It is suggested that each Vice-President, by resolution, be directed to place himself in connection with the Councilors of the three Congressional Districts nearest his residence, so as to render all possible aid in the work of promoting the formation, development and healthful activity of local medical societies within his territory.

7. More than eighty years ago this Society arranged a reciprocity with other State societies having standards equal with ours, so that individuals on removing to such State were accepted by its society, and its members on removing to ours were accepted by us, so avoiding the annoyance of re-election. If re-enacted, this reciprocity in State society membership would enhance our membership value and encourage the maintenance of good standing therein. A bank note current at face value in forty States is more desirable than one current in one State.

8. Never has this Society made special effort to retain till death, members of long standing and faithful service. One by one each becomes incapacitated for active effort. Why not form a Roll of Honorary Members, with full privileges but without dues? Scant knowledge of men is required to know that these veterans would, most efficiently, promote enlistment of their young medical friends, and their love for this Society grow stronger as they neared their eternal home. It is suggested that the Committee on Re-organi-

zation define the limitations needful to make and keep this a roll of honor, and select the names of those now eligible, and that additions hereafter be yearly presented by the Committee on Nominations, the Society electing them as other members.

Lastly, for eighty-three years the Michigan Medical Society has kept step with the onward march of medical progress. It remains to gather wisdom from our past, from our sister state societies, from the American Medical Association, and medical sociology and use it as a guide to enlist the cordial co-operation of every physician in making the Michigan Medical Society worthy of its magnificent domain, its glorious past, and our universal brotherhood.

THE VALUE OF THE EXAMINATION OF THE BLOOD TO THE GENERAL PRACTITIONER.*

W. K. WEST,
Calumet, Mich.

If credit belongs to one factor more than another for the marked progress in the science of medicine during the past quarter of a century it undoubtedly is due to laboratory workers, as from their study and work has come a better understanding of the etiology of pathological conditions; making possible a more correct and rational treatment, greater therapeutic accuracy, and a more definite knowledge of the course of disease processes. The microscopical examination of the sections for signs of malignancy, of sputa for the tubercle bacilli or elastic tissue, cultures taken from the throat and their examination to differentiate diphtheria and tonsilitis, of pus and secretions to determine the exact infecting germ, the examination of the stomach contents both microscopically and chemically for evidence that will support or disprove clinical symptoms, the use of the microscope in the study of lesions of the skin, and more recently the examination of the blood, all demonstrate the value of laboratory investigations and their clinical application in diagnosis. Success in the practice of medicine, from a scientific standpoint, requires a knowledge of these modern methods. In surgery, earlier operative intervention made possible by a prompter diagnosis, has resulted in greater lessening of suffering and saving of life, and in internal medicine the element of doubt may often be removed, proper treatment adopted, and a more correct prognosis given. The physician with a conscientious regard for his patient's welfare should recognize the duty devolving upon him; and with a recognition of the great value of these methods, apply them in the management of his cases. As a result of a familiarity with them, greater responsibility rests upon him and an incorrect diagnosis is the more reprehensible. The methods of dealing with morbid states have so changed in the past few years, having become more accurate and exact through the recent aids to diagnosis, that the doctor must constantly advance and adopt new ideas as they are proven to be of value.

To hold the confidence of the public and retain his standing in the profession, he must be inspired by the teachings of today and not those of twenty-five or even ten years back. Modern methods do not imply less thoroughness or painstaking care in the bedside examination of the pa-

* Oration on Medicine, Annual Meeting, Port Huron, Mich., June 26, 1902.

tient and study of the case; nor less skill exercised in the detection of pathological lesions; but in addition to the physical examination, these newer methods are potent aids, supplementing other means and in many cases absolutely essential to making a correct diagnosis, and without whose aid many cases must perforce be treated blindly.

Even with the most experienced clinicians the diagnosis often remains in doubt and the course of the disease not thoroughly understood; and any means that will assist in dispelling the doubt should be understood and tried. To the older practitioner particularly are these methods of greater value; and he will the more correctly interpret the clinical symptoms, and the results of laboratory examinations, and be less easily misled. In the study of pathological conditions, their etiology, course and treatment, haematology, the study of the blood, now occupies a very prominent and important position, and there has been such a vast amount of study and research done in this branch of medicine that its practical utility can no longer be questioned. Neither is it a fad of a few enthusiasts limited to laboratory work with no bed-side experience; and though there remains much to be learned in its clinical application, the examination of the blood has already been demonstrated as a rational scientific procedure of great value. It has been shown by a study of the blood in certain diseases that deviations from the normal so constantly occur as to be considered pathognomonic. The importance of blood examination to the physician and surgeon has become a recognized fact, and the many articles on the subject during the past year are significant.

An increasing number of physicians each year include the examination of the blood in their methods of diagnosis, but there remains a very large majority, particularly among the general practitioners, to whom it should be of the greatest importance, who do not make use of it. In our own State it is no exaggeration to say that fully ninety per cent. do no blood work themselves nor do they have it done for them.

Through a correspondence with a large number of physicians I learned that less than ten per cent. made even the simpler or more common examinations; those which by experience they would find invaluable and the technique of which could be readily acquired. With this apparent apathy or disregard of a valuable and essential diagnostic method a consideration of the subject at this meeting is both timely and important.

Until very recently students have been graduated from most of the medical colleges with little or no training in this work. Due importance has not been given it by their teachers and they begin the practice of medicine with scant knowledge concerning it, less familiarity with its technique, and far too little appreciation of its worth. It is not right that men should enter the practice of medicine handicapped by inefficient training in any important aid to diagnosis. It lessens the possibility of their success and lowers the standing of the profession. The argument that urgent cases permit of no time for the examination of the blood shows that a misconception exists regarding the time which such an examination requires. The busy country doctor with a large practice and long drives feels that his day's work is already crowded; but if he would make it his habit to carry with him,

as he does a thermometer or hypodermic syringe, the blood counters and a few cover glasses, occupying but little space, it would not often become necessary for him to make a special trip to examine the blood; and the benefit accruing to him in the management of his cases would in the long run be time saved. But a few seconds are required at the bedside to prick the finger, draw the blood into the pipette and dilute with the proper solution. On returning to his office the corpuscles can, with but little practice, be counted in ten or fifteen minutes, while the more expert need but a third of that time. The device of Tallquist for estimating haemoglobin can easily be carried in an inside coat pocket and makes the bedside determination of the percentage of haemoglobin both simple and practical. By having a few cover glasses in the pocket a blood spread may easily be made and readily carried, when dried, to be stained later. In malarial localities where the diagnosis of so common a disease can promptly be made by examinihg the blood this is of greater importance. Counting the white and red corpuscles, estimating the haemoglobin, and examining the stained specimen are always available; while in office practice may be added the examination of the fresh drop.

Recent editions on Haematology by American authors show an exhaustive amount of study and work, and make clear the technique and its clinical significance. There is no reason why every doctor cannot qualify himself to examine the blood, and the importance of these examinations to him no longer admits of argument. The reasons of its greater value to the general practitioner are obvious, as it is his privilege and good fortune to be called in attendance upon the sick at the onset of morbid conditions, when the efficacy of therapeutic measures are more pronounced and the extension of the lesion more promptly checked or its course greatly modified. Impelled by a conscientious regard for the welfare of his patients, the physician should be able to adopt all means that may assist in the making of an early definite diagnosis. An examination of the blood may often be the only means of determining the true condition; and by it the course of the disease better understood, dangerous complications earlier recognized and the results of treatment more accurately known. It is a not infrequent experience for the diagnosis to remain several days in doubt, notwithstanding a thorough painstaking physical examination has been made; and in just such cases, with conflicting clinical signs, will a blood examination often clear the horizon and be of inestimable value. The examination of a patient can no longer be considered thorough or complete that leaves out the examination of the blood.

Our judgment regarding the presence or absence of anaemia or its severity will often mislead us if the clinical signs and appearance of a patient are the only means of forming an opinion. Estimation of haemoglobin, the blood count and examination of the stained preparations make possible greater certainty and accuracy in diagnosis; and the differentiation of the different forms of anaemia from each other, or from other conditions accompanied by marked changes in the blood is only possible by this means. Severe anaemia has often gone unrecognized by experienced clinicians until the blood has been examined. Though in most cases of simple anaemia or chlorosis the diagnosis may be made in the usual way, the con-

firmatory evidence of the blood examination is of value and makes possible a knowledge of the exact degree. Frequent examinations will show the effect on the blood of medication and give us accurate information of the progress of the case. In pernicious anaemia a definite diagnosis is impossible without the blood examination. Cabot states that it may be indistinguishable from chlorosis or from secondary anaemia due to carcinoma. He reports such a case where the diagnosis of pernicious anaemia had been made; a lemon yellow color of the skin had been gradually acquired without assignable cause, loss of flesh, vomiting, pain or any localized symptom. His examination of the blood showed that it was not pernicious anaemia, but that the anaemia was evidently secondary; which was confirmed ten months later by the autopsy showing cancer of the stomach present. "The pallor of chlorosis and pernicious anaemia," he says, "is not always different either in degree or kind, and the symptoms and physical signs may be identical." His reference to four cases diagnosed as leukaemia, which an examination of a stained preparation of the blood proved to be incorrect, and later were shown to be malignant tumors of the kidney, is also evidence of the necessity of these examinations. The correct diagnosis of any of these diseases requires a careful and thorough examination of the blood; and failing to do it is unscientific, inaccurate, and slip-shod. It has been recently observed that counting the red corpuscles and estimating the haemoglobin will differentiate chlorosis from exophthalmic goitre.

There is no disease which gives rise to more mistakes in diagnosis nor which may be earlier recognized than malaria. Laveran's discovery of a parasite in the blood associated with the symptoms of malaria, and the demonstration of its etiological relation to that disease marks an epoch in medicine. In the examination of the blood its detection makes a diagnosis certain and it should be looked for in all cases where the clinical symptoms suggest malaria, and in malarial sections the blood should always be examined where there is any doubt regarding the nature of the disease. Aside from the presence of the parasite making the diagnosis certain, the changes in the leucocytes are of value; which in all uncomplicated cases show a marked decrease. Thayer states in his monograph that "the presence of an appreciable leucocytosis is strong evidence against the existence of uncomplicated malaria." It has been also shown that with this decrease in the leucocytes there are certain constant qualitative changes; the large mononuclears being relatively increased while the polymorphonuclear nutrophiles and small lymphocytes are decreased. These changes are unaffected by the action of quinine.

Yet with this simple means for a positive diagnosis at hand there is to-day no term more loosely used by the general practitioner than malaria, and it is not uncommon for diseases more or less resembling it to be treated for weeks with an incorrect diagnosis, and the physician often in doubt, yet making no effort to examine the blood. The experience of our surgeons during the recent war with Spain showed how frequently a mistaken diagnosis could be made without an examination of the blood. In the official report on the origin and spread of typhoid fever during the way of 1898, by Drs. Reed, Vaughan and Shakespeare, it is stated "that most cases of typhoid fever improperly diagnosed were sent to the general

military or civil hospitals with a diagnosis of malaria; and in 80 out of 85 cases sent to civil hospitals in Baltimore the diagnosis was changed from malaria to typhoid fever." They also state that they do not believe that the mistakes were more common than by physicians throughout the land. There is certainly no more forcible argument than this experience of our army surgeons, for the examination of the blood in all cases where malaria is possible or suspected.

Typhoid fever is another example of the importance of blood examination, both in differentiating it from malaria, as already referred to, and from other diseases which may simulate it. Influenza, meningitis, military tuberculosis, central pneumonia, and appendicitis have all been difficult to distinguish from typhoid fever in the early stages, when by the clinical symptoms alone a positive diagnosis may be impossible to make. The study of the blood will assist both by the Widal test and the leucocyte count. The clinical value of the serum test was first demonstrated by Widal in 1896 and has been found reliable in fully 95 per cent. of all cases of typhoid fever. Not being present, however, until the end of the first week and in some cases even later, it can be of no assistance in the first few days, when a correct diagnosis may be of the greatest importance. At this time, however, the leucocyte count will positively distinguish it from most cases of appendicitis, non-tubercular meningitis or pneumonia. The element of doubt so often referred to in distinguishing appendicitis from typhoid fever need not exist when the blood count is used, as in the very large majority of cases there is a marked leucocytosis, while in typhoid fever the leucocytes are seldom increased at the onset, and decrease during the course of the fever. In those cases with exaggerated cerebral symptoms during the first week, it may be difficult to rule out meningitis by the clinical symptoms alone; but the absence of leucocytosis will make the presence of the latter disease improbable. This value of the blood count is shown by a case I saw in consultation last winter. The patient, a young man, had been taken suddenly sick the previous day, and when first seen by his physician had a temperature of 105 degrees, rapid pulse, intense headache, periods of marked delirium, followed by a semi-comatose state. The heart and lungs were negative and no evidence of abdominal lesion. The possibility of so serious a disease as meningitis could only be ruled out by the blood count, which in this case showed a normal number of leucocytes. The eruption at the usual time, of small-pox, made the diagnosis clear. There were only two cases of this disease in the city at the time, over a mile from his home, and no history of exposure on his part, as far as could be learned. The examination of the blood may be of great value in the management of typhoid fever and the prompt recognition of serious complications made more certain. The increase in the leucocytes will, in connection with other symptoms, assist in the early diagnosis of a perforating ulcer or the presence of pneumonia or appendicitis. This is illustrated by a case we had under our care two years ago in which appendicitis developed during the second week of typhoid fever, and the examination of the blood made its recognition more certain. The development of severe pain and increased tenderness in the region of the appendix led us to suspect appendicitis; particularly as this aggravation in the symptoms was accompanied by a marked leu-

cocytosis. An operation was immediately determined upon, and there was found a thickened inflamed appendix containing a small piece of lead. The patient made an uninterrupted recovery from the operation, and the typhoid fever pursued its usual course. The presence of other cases of typhoid fever in the same household, and in this case the rose spots and a positive Widal had made the diagnosis of typhoid fever certain and the increase in leucocytes at this time had simplified the recognition of a complicating appendicitis.

The importance of the blood count in appendicitis both in diagnosis, but more particularly in prognosis, is now, I believe, a well established fact. While it is true that the more acute cases can as a rule be recognized by the local signs alone, it is equally true that in these cases where the symptoms are not as marked, a clear, definite diagnosis is often one of the most difficult to establish. And even with the diagnosis made, the extent of the inflammatory process cannot be accurately determined, as the local signs may often be misleading or wrongly interpreted. In connection with the other symptoms, the leucocyte changes may be a valuable factor in reaching a correct conclusion relative to the existing conditions, and have often been found the only indication of danger. So true and important is this fact that a blood count should be made at frequent intervals in all cases where a positive diagnosis cannot at once be made, or for any reason an operation may have to be deferred. Each additional experience has shown that the local signs, pain, tenderness, and muscular rigidity are not infallible guides; and this fact has been demonstrated repeatedly by operations done on the showing of the blood count alone. The reports of such cases by a number of competent observers have made it evident that the information gained from the blood count, and the management of the case according to its showings have been the means of saving many lives. As an illustration of how serious an inflammation in and about the appendix may exist and yet be unrecognized by the local signs, is the case reported in detail in the *Medical Record* of March 29th, 1902, by Dr. Evans of New York City. Associated with him in the management of the case were some of the ablest physicians and surgeons of that city; yet no diagnosis was made. Dr. Evans summarizes as follows: "This patient was sick five days. Every 24 hours marked a decided advance in the pulse and toxaemia; the pulse increasing about 20 to 30 each day. The temperature remained practically negative from the fourth day after beginning of first symptoms until 30 hours before death; and there was not a cardinal symptom of appendicitis or peritonitis at any time." At the autopsy diagnosis of gangrenous appendicitis was made, with localized incipient gangrene of the small intestine. The lumen of the appendix was distended with a thin dark colored pus.

It is not possible for the general practitioner with a comparatively limited experience in the diagnosis of appendicitis to as clearly distinguish the signs present, as the surgeon with an experience reaching into the thousands, both at the bedside and operating table; and to him particularly will the blood count be of inestimable value.

In pneumonia the increase of leucocytes may be of great value in leading to an early diagnosis, when by the absence of definite local signs, as in those of central origin, it cannot clearly be defined. Nearly all cases are accompanied by a

marked leucocytosis, which has been shown to occur coincident with or soon following the initial chill and continuing until the crisis. The only exceptions to this rule are the very mild attacks, or the extremely grave ones accompanied by an overpowering toxaemia and lack of resistance on the part of the system. By means of the blood count a more positive prognosis can be given. A severe attack, as shown by the usual symptoms, is of greater gravity if it be accompanied by slight or no leucocytosis; and the presence of eosinophiles, which do not return to the peripheral circulation until the acme of the disease has been passed, may be the first indication of a favorable termination, several hours or longer before any subsidence in other symptoms. Cabot has repeatedly seen the diagnosis of pneumonia made in the absence of physical signs; and largely on the evidence of the blood count; the diagnosis being confirmed several days later by the appearance of typical signs of consolidation. He refers to a case of Dr. Shattuck: "Sick 5 days, yet showing no signs of consolidation of the lungs. The presence of a marked leucocytosis excluded typhoid fever, the only other likely diagnosis, and led him to treat the case as pneumonia, the wisdom of which was later demonstrated by the appearance of signs of consolidation."

It is not necessary that the busy practitioner attempt to become an expert in the examination of the blood, but he can and should acquire sufficient skill in the methods most often required, and in doing that much he will become more and more convinced of the practical benefit of it to him. He must familiarize himself with the microscopical appearance of normal blood to correctly interpret pathological changes. The necessary technique in the preparation and counting of the blood corpuscles demands absolute accuracy for correct deductions. Pathological must be distinguished from normal leucocytosis and the action of digestion and exercise in the cause of the latter understood. The normal puerperal state is accompanied by leucocytosis which may interfere with the use of the blood count in pathological conditions for a few days following labor. Chloroform and ether anesthesia both produce an increase in the leucocytes, as also does the subcutaneous injection of normal salt solution and the administration of certain drugs. Any of these causes may have to be eliminated in arriving at conclusions, but when considered, need not interfere with the practical application of the principle. What the physician needs to recognize is that there are certain definite blood changes to be found in many pathological conditions and that there is great practical benefit in their clinical application. To aim at greater accuracy in diagnosis and to be able to intelligently apply every method that may assist in making it, should be the aim of all.

There remains much to be learned from the study of the blood, and though still in its infancy, sufficient has been demonstrated to establish its value, and the future will undoubtedly reveal for it a much more extended field of usefulness.

Charters have been granted also to the following societies:

Livingston County Medical Society. President, Wm. J. McHench, Brighton; secretary, R. H. Baird, Howell.

Houghton County Medical Society. President, A. I. Lawbaugh, Calumet; secretary, W. K. West, Calumet.

Mecosta County Medical Society. President, Joseph McNeece, Morley; secretary, F. C. Terrill, Big Rapids.

BACTERIAL TOXINS.

VICTOR C. VAUGHAN,
Ann Arbor, Mich.

There has been much discussion concerning the question whether the specific toxins have their origin in the cleavage action of bacteria acting as ferments on the complex proteids in the body or in culture media, or are due to synthetical processes by means of which the bacterial cell builds up its own tissue. For at least a few of the pathogenic germs this question has been practically settled, and it can be definitely stated that the specific toxins of these are synthetical bodies built up by the bacterial cell, and that the cells themselves contain the poison. In 1900 the writer succeeded in perfecting a large incubation tank, by means of which bacterial cells have been obtained in large amount free from constituents of the culture medium, and with the cell substance thus obtained numerous experiments have been made.

The Colon Toxin.—When the colon germ is obtained in large amount and after it has been freed from fat with alcohol and ether it forms a grayish white powder which takes up and holds moisture, but does not absorb enough to materially alter its physical condition. This powdered germ substance when stirred up with water and injected intra-abdominally into guinea pigs or rabbits is highly toxic, causing death in the former animals when used in the proportion of 1:40,000 of body weight, and in the latter in smaller quantities. This intracellular toxin is highly resistant to heat, and the powdered germ suspended in water in a sealed tube has been heated for 30 minutes to 180°C., without appreciable loss of toxicity. When the germ substance is shaken with a one per cent. solution of sulphuric acid in water and filtered it is found that the clear filtrate on being treated with three volumes of 96 per cent. alcohol yields a flocculent precipitate which, if not allowed to stand for too long a time under alcohol, is readily soluble in water, forming, however, a somewhat opalescent solution. This alcoholic precipitate when dried first between folds of filter paper and then over sulphuric acid in vacuo forms a white mass which when rubbed up in a mortar is converted into a light grayish powder. When some of this powdered sulphuric acid extract of the germ substance is dissolved in water and injected intra-abdominally or subcutaneously into animals it causes death with the symptoms and post-mortem findings practically identical with those which follow administration of the whole germ substance. The part of the germ substance insoluble in dilute sulphuric acid is also poisonous, but much less so than that which is extracted with the acid. These investigations demonstrate that the colon bacillus contains an intracellular toxin which undoubtedly has a complicated constitution and contains two or more toxic groups, one of which is split off by the action of dilute acid. With this bacillus at least, the specific toxin is formed within the cell and does not have its origin in the cleavage action of the bacterium either directly or indirectly. The formation of this toxin is a synthetic and not an analytic process. Under ordinary conditions at least the toxin contained within the colon bacillus does not diffuse into the culture medium. This probably explains the reason why the colon bacillus, although containing a most potent toxin, resides constantly without harm to the individual in the intestines. It also explains

why when this germ gets into the peritoneal cavity and is broken down by phagocytic action the poison is liberated and manifests itself in the production of peritonitis or other inflammatory lesions.

Prolonged heating of the posion of the colon bacillus with one per cent. sulphuric acid destroys its toxicity, and this indicates that the toxin undergoes hydrolytic changes under the prolonged heating which breaks up its molecule into harmless constituents. We have not had time as yet to attempt to immunize animals to the toxin obtained from the cells of the colon bacillus by treating the cell substance with dilute sulphuric acid. It remains to be seen whether immunity can be secured to this poison or not, and if immunity be obtained, whether it extends to the toxin contained in the unaltered germ substance. Marshall and Gelston working in my laboratory have carried out a long series of experiments in endeavoring to induce immunity in guinea pigs and rabbits with the powdered colon germ. With the former animals the result has been practically negative, inasmuch as death has invariably resulted before any high degree of immunity has been reached. With rabbits the results have been somewhat more satisfactory, and they have succeeded in partially immunizing a few of these animals. Rabbits thus immunized furnish a serum which has been found to have a preventive influence in rabbits against colon toxin, but it is practically without effect in protecting guinea pigs. The knowledge which has been gained in the recent studies of the colon bacillus may be summed up as follows:

(1). The colon toxin is a constituent part of the cell, and is formed by synthetical processes which build up cell tissues.

(2). This toxin is highly resistant both to chemical agents and to heat.

(3). The toxin is undoubtedly of complicated constitution and contains two or more toxic groups, one of which may be split off by agents which have a hydro lytic action.

(4). The toxin split off from the cell by dilute acids may be deprived of its poisonous property by the long continued application of heat, especially in the presence of free mineral acid.

The Anthrax Toxin.—Ever since it was admitted that pathogenic bacteria induce harmful effects by the elaboration of poisons, chemists have endeavored to find the specific poison of anthrax. Hoffa at one time claimed that he had found a basic substance, to which he gave the name anthracin, and which he believed at that time to be the specific poison of the disease. However, subsequent investigations have demonstrated that this substance cannot be considered the specific poison of anthrax, and moreover no one else has ever succeeded in obtaining it. Without going fully into the literature of this subject, which, by the way, is quite voluminous, the writer desires to refer to a comparatively recent research by Conradi, in which the work of previous investigators has been reviewed, and is followed by a statement of his own researches. Conradi attempted to solve the question of the existence of an anthrax toxin by the following methods:

(1). He inoculated guinea pigs intra-abdominally with anthrax; obtained peritoneal exudates which formed in these animals in quantities of from 10 to 20 cc., filtered these exudates through porcelain and injected the germ free filtrate into mice, rabbits, guinea pigs and other animals, without any effect.

(2). The organs of guinea pigs which had succumbed to anthrax were rubbed up in mortars with sterilized sand, diluted with physiological salt solution, filtered through porcelain, and injected into rabbits, guinea pigs, rats and mice, without effect.

(3). Sacs similar to the collodion sacs so generally used in bacteriological laboratories were filled with cultures of anthrax and placed in the abdominal cavities of susceptible animals where they remained without detriment to the health of the animal, thus showing that the anthrax bacillus does not produce any soluble toxin. The truth of the matter is that this fact had been demonstrated more than twenty years ago by Pasteur, who filtered both the blood of animals sick with anthrax and artificial cultures of this bacillus through porcelain and injected the germ free filtrate into animals without inducing the disease.

(4). Peritoneal exudates obtained from animals dead with anthrax were sterilized by prolonged and frequent shaking with toluol and after being sterilized in this manner were injected into susceptible animals without effect.

(5). Cultures of the anthrax bacillus free from spores were deprived of vitality by exposure for 110 hours to -16°, and after having been shown to be sterile by being kept in the incubator for some time, were injected into susceptible animals without effect.

(6). Cultures of the anthrax bacillus were exposed to hydraulic pressure of 500 atmospheres and the fluid thus obtained after filtration through porcelain was injected into animals without effect.

(7). The experiments of Brieger and Fraenkel, who at one time reported the discovery of an anthrax toxalbumin were repeated with negative results.

From these investigations Conradi concluded: "By no method known at present can it be shown that the anthrax bacillus forms either an extra cellular or an intracellular poison in the animal body. Indeed, these experiments increase the probability that the anthrax bacillus does not form any poisonous substance. Therefore the solution of the manner in which anthrax infection results must remain unknown. Whether improved chemical methods will lead to the detection of a poison or not cannot be predicted, but for the present the anthrax bacillus must be regarded as a purely infectious microorganism."

Experiments carried out in the writer's laboratory by J. Walter Vaughan recently apparently offer a satisfactory solution of the question of the existence of an anthrax toxin. A large amount of the germ substance was obtained and the bacterial powder was heated with one per cent. sulphuric acid in the autoclave at 110° for ten minutes. The clear filtrate obtained with the dilute acid on being treated with three volumes of 96 per cent. alcohol deposited a white flocculent precipitate, which when collected, dried, and pulverized, has been found to be soluble in water and to kill guinea pigs with all the symptoms and lesions of anthrax when injected into the abdominal cavity in doses of from 50 to 100 mgs. It has also been found that the part of the germ substance undissolved by the dilute acid is poisonous, but much less so than that part split off by the acid. The following conclusions have been reached from these studies of the anthrax bacillus:

(1). The anthrax germ does produce an intracellular toxin, which contains two

or more toxic groups, one of which is split off by means of dilute sulphuric acid at the temperature of 110°.

(2). The split toxin is deprived of its poisonous properties by continued heating in the presence of free mineral acid.

(3). The toxin split off by dilute acid is probably basic in character and possibly belongs to a low order of proteid substances, since it does not respond to the biuret or Millon test, but does give the xanthoproteic action.

From this work on the chemistry of the anthrax cell it seems evident that this bacillus in the animal body must undergo certain hydrolytic changes by means of which its toxin is set free. Whether this process of freeing the toxin is a passive one and due to the normal disintegration of the dead cell, or is accomplished by the activity of certain cells in the animal body, remains for future investigations to determine. It seems likely that the cells of the animal body in resisting the invasion of the bacterial cells split the latter up, and in so doing, liberate the poison which destroys the life of the animal. This, however, is a matter of speculation, and any authoritative statement on this subject must await more elaborate investigation.

The Diphtheria Toxin.—The remarkable theory concerning the action of toxins and antitoxins and the mode of the formation of the latter, advanced by Ehrlich, is based upon a large number of carefully conducted experiments with the toxin and antitoxin of diphtheria. The essential points of Ehrlich's theory are as follows:

(1). Toxins and antitoxins neutralize one another after the manner of chemical reagents. The chief reasons for making this statement lie in the observed facts (a) that neutralization takes place more rapidly in concentrated than in dilute solutions; and (b) that cold retards, and warmth hastens neutralization. From these observations Ehrlich concludes that toxins and antitoxins act as chemical reagents do in the formation of double salts. A molecule of the poison requires an exact and constant quantity of the antitoxin in order to produce a neutral or harmless substance. This implies that a specific atomic group in the toxin molecule combines with a certain atomic group in the antitoxin molecule.

(2). Antitoxin is a reaction product of the living organism, and not a transformation product of the toxin introduced in securing immunity. According to Ehrlich, when the toxin is introduced into the animal body in small quantities it combines with certain side chains in the molecules of the living cells. These side chains are supposed to be necessary for the proper functioning of the cells which, finding themselves deprived in part of their function, on account of combination with the toxin, elaborate more side chains. As an illustration: When a small quantity of tetanus toxin is introduced into the animal body it combines with certain side chains of the molecules of the cells of the central nervous system, and renders these atomic groups useless so far as the nutrition of the cell is concerned. In order to compensate for its loss the cell produces another side chain similar to the one of which it has been deprived. Being called upon repeatedly to exercise this activity, there is not only compensation, but overcompensation, and the result is that more side chains are formed than the cell can use, and these break off and float away in the blood, constituting the antitoxin. Moreover, the atomic group, or side chain, after being liberated from the cell may acquire greater avidity for combination with

the toxin, or in other words, the toxin will combine more readily with these side chains when free and floating in the blood than when they constitute parts of the molecules of cells.

(3). Diphtheria toxin, as it exists in sterilized cultures, is composed of equal parts of toxin and toxon. The latter has no serious effect upon animals. It may cause local oedema, but it never kills. The toxin, which may be regarded as inert, has quantitatively the same power of combination with the antitoxin as is possessed by the toxin, but combines with the antitoxin with less avidity.

(4). The well known fact that crude diphtheria toxin decreases in toxicity on standing has been explained by supposing that there is a gradual conversion of the toxin into toxon, while the other equally well observed fact that the toxin of diminished toxicity requires the same amount of antitoxin for its neutralization as the original toxin did is explained by the theory that toxon and toxin combine with antitoxin in the same proportion.

Gelston, at work in my laboratory, has shown that in addition to the soluble diphtheria toxin, which exists in cultures of this bacillus, there is also an intracellular toxin. Moreover, he finds that commercial diphtheria antitoxin, while it protects animals against the extracellular poison fails to afford protection against the intracellular toxin. This undoubtedly explains the facts which has been observed by others that certain animals which are practically immune to diphtheria toxin are not immune to diphtheria infection. Whether or not an antitoxin for the cellular toxin of diphtheria can be produced in animals artificially remains to be determined. The relation between the cellular toxin and the soluble poison also opens up a question of interest and importance, which must be solved by future investigation.

On October 8th, 15th and 22nd will occur the organization of the medical societies of Ionia, Lapeer and Washtenaw Counties, respectively.

The Wexford County Medical Society has been organized. Dr. B. H. McMullen, Cadillac, was elected President, and Dr. G. D. Miller, Cadillac, Secretary.

On October 14th the physicians of Lenawee County will formally organize the Lenawee County Medical Society. On the same day will occur the organization of the Jackson County Medical Society.

A charter has been granted to the recently organized Houghton County Medical Society. The officers are Dr. A. I. Lawbaugh, of Calument, president, and Dr. W. K. West, of Calument, secretary.

A charter has been granted to the Oakland County Medical Society, which was organized Sept. 9, 1902. Dr. F. B. Galbraith, Pontiac, President, and Dr. Wm. McCarroll, Pontiac, Secretary, will look after the society's interests during the coming year.

Most satisfactory reports have reached us from Livingston County of the organization of a county medical society there on Sept. 17th. Of twenty-four physicians in the county, eligible to membership, nineteen have already joined the society. Dr. Wm. J. McHench, of Brighton, was elected president and Dr. R. H. Baird, of Howell, secretary. A charter has been granted.

At the Annual Meeting of the Society, Port Huron, June 26th, 1902, before the Section on Surgery the following symposium was delivered:

THE SURGERY OF THE KIDNEY

(*a*)	Floating and Movable Kidneys,	RICHARD R. SMITH, Grand Rapids.
(*b*)	Calculus in the Kidney and Ureter,	T. A. MCGRAW, Detroit.
(*c*)	New Growths of the Kidney,	A. S. WARTHIN, Ann Arbor.
(*d*)	Acute Kidney Infections,	T. A. FELCH, Ishpeming.
(*e*)	Surgery of the Kidney in Tuberculous Conditions,	W. H. HAUGHEY, Battle Creek.

FLOATING AND MOVABLE KIDNEYS.

RICHARD R. SMITH,
Grand Rapids, Mich.

The tendency of the past few years in treating movable kidneys has been toward a greater conservatism. This has been brought about by a more general recognition of several facts.

First—That a large percentage of movable kidneys produce few, if any, symptoms.

Second—That where we find a movable kidney, in many cases we will also find a prolapse of the stomach, intestines, liver and even spleen, and that the general displacement of all these organs and not of the kidney alone accounts for the symptoms.

Third—That in many of these cases the neurasthenic element is well marked and the pain in question is due to this condition and not to the kidney itself.

Fourth—That operation fails in many cases to retain the kidney permanently in place and that in these patients neither an actual nor a symptomatic cure is obtained.

Fifth—That a well directed treatment, other than surgical, produces oftentimes symptomatic cures which are satisfactory.

A more general recognition of these facts has brought about a more careful selection of cases for operation. Personally I do not advise operation except in those cases where other means have been faithfully tried, where the symptoms can be directly traced to the kidney and in which the neurasthenic element is not marked.

Nephrectomy was early practiced for the relief of this disease. It was found, however, to be attended with a considerable mortality and nephrorrhaphy has been generally substituted. The number of operations which have been devised are legion. They may be divided into three classes: those in which a foreign substance, as gauze, is packed about the kidney, the resulting adhesions forming the future support of the organ; those in which the kidney has been stitched to the lumber fascia without opening the capsule; thirdly, those in which the capsule is partially removed and the kidney substance brought into direct apposition to the fascia or muscles of the incision. There have been many details of more or less value suggested and carried out by different operators, but the three operations described below are types and will serve the purpose for a general description.

First.—The operation of Nicolas Senn. The fatty capsule is removed or pushed aside and a strip of gauze placed about the lower pole of the kidney in such a way as to suspend the kidney as in a hammock. The ends of the gauze are brought out through the incision, which is left entirely open. The gauze is removed in a few days and the wound allowed to heal by granulation.

Second.—This operation has been described by Goelet and has been carried out, often with modifications by different operators. The fatty capsule is stripped back or partially removed as may be necessary, the kidney brought well into the incision without removing the true capsule, a suture is passed on a needle in a longitudinal but slightly oblique direction, the needle entering the kidney at a point on its posterior surface some little distance from the upper pole. The needle and suture emerge half an inch or so from the point of entrance and are inserted again near the point of exit, pass in a transverse direction taking in about the same amount of kidney substance again and emerge once more near the convex surface. Another similar bite brings the needle and suture out near the original point of entrance. This, as will be seen, forms a triangle, encompasses quite a little of the kidney substance and affords a firm grip for the suture. The two ends of the suture are then sewed into the lumbar fascia on the side nearest the vertebra. If desired, several such triangles may be made lower down on the kidney in a similar manner. This brings the posterior surface of the kidney up against the lumber fascia, dependence being put upon the adhesion so formed for the future support of the kidney.

Third.—This operation is best described and carried out by Edebohls. The usual lumbar incision, either vertical or oblique, is made, the fatty capsule of the kidney partially removed, the kidney brought well into view and the capsule split from end to end by an incision made on a grooved director to avoid injuring the kidney and thus causing troublesome oozing. The flaps are then reflected so as to expose a surface of about three-fourths of an inch in width on the convex surface of the organ. A catgut suture is then passed on a curved needle through the fascia at the upper angle of the lumbar incision, then through the reflected capsule an inch or an inch and a half from the upper pole, deeply through the substance, and out again through the reflected capsule on the other side, and then through the fascia opposite the point at which the suture first entered. Five or six sutures are then passed in this manner, about three to the inch, through the fascia and kidney below this point. Care must be taken to put no undue strain upon these sutures for fear of tearing the kidney. Other sutures are passed independently through the fascia alone, to avoid bringing undue strain upon the kidney sutures when the incision is closed. When all is ready, the original sutures are gently tightened, bringing the denuded surface of the kidney well up against the incision; the sutures passing through the fascia alone, being then tied, and, last of all, the kidney sutures themselves. The skin and underlying tissue may be brought together with silkworm gut. All kinds and sizes of catgut have been used in this operation, according to the habit of the operator.

The operation of Edebohls has the disadvantage of rendering more or less traumatism to the kidney sutures. An operation which simply sutures the capsule itself, on either side, to either side of the incision without injuring in any way the kidney substance itself, has seemed to me to be equally as efficacious and does away with the objection of the operation just described.

Any of these operations may be attended with relapses, still, a considerable proportion of them are effectual and the results oftentimes brilliant.

CALCULUS IN THE KIDNEY AND URETER.

THEODORE A. McGRAW,
Detroit, Mich.

It has seemed to me best, on presenting this subject for discussion, rather to confine myself to a brief outline of its various phases than to enter into a long and exhaustive discussion.

As regards the etiology of kidney and ureteral calculi, the division sometimes made into primary and secondary seems to me unpractical. There are no primary calculi, for their formation always depends upon some antecedent abnormality. Neither may we consider them as aseptic or septic in their origin, for the reason that those which have originated in the lodgment of some septic germ in the kidney may nevertheless, when the germ has been incrusted by urinary salts, pursue henceforth a perfectly aseptic course, while others which were aseptic in origin may cause irritation and abscess. It is better to study first the causes which are predisposing, then those which are exciting, and determine, if possible, whether there are any which might be avoided by a proper hygiene.

According to authors, who have made this field the especial object of their study, heredity plays an important part in the production of urinary calculi. In some families the malady has been traced through several generations. While the fact that the members of such families have been exposed to a similar environment, living over the same soil and in the same climate, and eating the same kind of food and using the same kind of drinks, must not be forgotten, yet it must also be remembered that neighbors who have lived very nearly after the same fashion have enjoyed an immunity from the disorder. The conditions which make this hereditary tendency are, in all probability, peculiarities in the formation of the kidneys and ureters, and possibly in some of the digestive organs, which repeat themselves in several generations. We may seek for a main predisposing cause of stone, in defective developments, which act either in causing some abnormal secretions of urine or in obstructing the discharge of that fluid. That errors of development are largely responsible for the formation of stone is rendered probable by the fact that nearly half of all cases of stone occur in children under twenty years of age. Between twenty and forty years stone rarely originates. After forty the beginning degenerations play a part, which will hereafter be considered.

The gross abnormalities which affect the secretion and discharge of urine are those which are manifested in altered shape or position of the kidney, or in some peculiarity in the manner in which the ureter issues from the pelvis of the kidney. It is easy to understand how urine would stagnate in a pouch formed in the pelvis of the kidney if the ureter were connected with that pelvis high up on the side instead of at its most dependent portion.

So, too, a narrowing of that canal at the upper portion might favor the deposit of salts. It is not impossible, too, that the small tubules might prove insufficient for the discharge of urine and thus serve as a predisposing cause for the formation of stone in the substance of the kidney. I have not been able to find any observations which have been made on purpose to elucidate this point in the pathology of stone. While nar-

rowing, or malpositions of the urinary canals, whether congenital or otherwise, predispose to calculus disorders, it is not probable that they ever are the sole causes. Thus, in many cases of ureteral malformations, which cause hydrops of the kidney, there is no formation of stone, while in others, which are in every other respect similar, the presence of calculi makes a serious complication. Abnormalities in the chemical constitution of the urine undoubtedly play an important part in the origin of calculi; whatever disposes to a precipitation of the urinary salts when still warm and in the body would act as an efficient factor. Thus a relative disproportion in the amount of solids and water, or any condition which would make the solids less soluble, would favor the deposit of grit, and consequently the formation of stone.

Just what conditions affect the formation of the urine in this way are not positively known, but the fact that urinary stone is endemic in certain localities and comparatively rare in others indicates plainly that soil and climate and the composition of the drinking water have much to do with the occurrence of this kind of disease.

That nervous influences act upon the urinary secretion is well known, but it is nevertheless a problem why the destruction of the spinal cord in the thoracic region is almost always followed by the formation of stone in the kidney. The occurrence of foreign substances in the kidney is apt to be followed by the deposit around them of urinary salts. This will always be the case sooner or later unless they are washed out by the flow of urine. Dead epithelium, clots of blood, inflammatory exudate, pus, tumors, bacilli and parasites of all kinds may form the nuclei around which calculi are built. For this reason, stone may result from injury, or from infectious diseases, like typhoid fever or gonorrhœa. In general, however, no one cause acts alone in the formation of stone. A nucleus, if present, may be carried away if the passage is large and unobstructed and the urine copious. If, however, in any part of the kidney a nucleus is lodged and the urinary passages are contracted or dislocated and the urine concentrated, a calculus will almost surely follow.

When a stone is formed in the kidney it begins, as a rule, to cause irritation of the surrounding tissue. The degree of irritation, however, will depend upon the hardness and roughness of the stone, its mobility and its location with reference to causing obstruction. An oxalate of lime calculus will cause more injury than one of uric acid or than a phosphatic stone. A stone that lies in the pelvis of the kidney and rolls around with every movement of the body will produce more trouble than an immovable calculus imbedded in the substance of the kidney; and one in the ureter more than one in the calyx. Occasionally stones are found in the kidney in post-mortems, which have never caused pain or trouble. The irritation may result in an abscess of the kidney or its pelvis, but it must not be forgotten that the existence of pus in the organ may be the forerunner and cause of stone, and not its effect.

The erosion caused by a rough, movable calculus may injure blood vessels and occasion serious, and even fatal, hemorrhages.

The frequent occurrence of stone in both kidneys may be due to the operation in both of the same influences. Ab-

normalities in formation may be common to both, and the same morbid quality of urine might also be common to both kidneys. There are, nevertheless, reasons for believing that in some cases, at least, calculus may result in one kidney from an irritation produced by a stone in the other. So, too, when one ureter is obstructed by a calculus, the reflex irritation caused in the other may induce a congestion with dangerous, or fatal, suppression of urine.

Among the symptoms caused by calculus in the kidney, or ureter, pain is usually the first that is noticed. The location and severity of the pain, however, differs widely in different cases. A calculus imbedded in the substance of the kidney may cause only a moderate degree of discomfort. Loose stones in the kidney pelvis cause pain that is aggravated by motion and jar. A stone impacted in the ureter produces an intense agony, which is afterwards increased by the distension of the renal pelvis by accumulating urine. The pain may be reflected and located by the patient, in the stomach, testes, penis, urethra, bladder, gall-bladder, appendix or other kidney. Percussion over the kidney may or may not elicit a sense of soreness. The vomiting caused may be as severe as that of any stomach trouble. If suppuration results there may be chills and fever. Pus will then begin to appear in the urine, which may besides contain crystals and earthy deposits.

The persistent irritation of stone in the pelvis of the kidney sometimes causes a hardening and thickening of the fatty capsule, which simulates a tumor. A movable stone, as it rubs against the surrounding tissues, may cause slight or serious hemorrhages. The microscope will often enable us to detect blood corpuscles when the urine shows no albumen by chemical examination. The cystoscope will aid in the diagnosis when pus or blood is discharged from one or both ureters, and in women a sound passed through the ureter may sometimes detect a calculus high up in that canal or in the pelvis of the kidney. The X-ray may be brought into service and the shadow of the stone be made apparent to a skilled observer. In using the X-ray for this purpose the soft tube is preferred, as the light from the hard tube passes through all obstructions of calculus character. In using the X-ray the surgeon must bear in mind that hard metallic or stony substances in the liver, stomach, spleen or large intestine might seem to be in the kidney if they lay just before that organ. Finally, the reflex irritation caused by stone in the well kidney may result in a total suppression of urine, which, if not relieved, will be a symptom indicating speedy death.

When the symptoms are all present the diagnosis may be easy. In many cases the nature of the malady may remain obscure in spite of all of our efforts. We have to diagnosticate calculus in the kidney or ureter from ulcer of the stomach, gall-stones and inflammations of the gall-bladder, diseases of the spine, appendicitis, lead poisoning, maladies of the urinary bladder, and tumors and inflammations of or around the kidney. Where the evil is great, and all other means fail, an exploratory operation is justifiable. As regards treatment, it must, of necessity, vary with the case. If we are called to a person suffering from a first attack of renal colic, we must, first of all, relieve the agonizing pain by the use of opiates. I have not that dread

of opiates which some surgeons have, on account of their obscuring diagnosis. I do not think that any experienced man need mistake the quiet produced by the opiate for an improvement in the disease, whether that disease is due to renal colic, gall-stones, appendicitis, or obstruction of bowels, however much such conditions may puzzle the beginner. During and after such attacks the urine should be carefully saved and examined for sand or small calculi. If any concretions are passed, with a corresponding relief of symptoms, the diagnosis is established as regards that attack, and there will be henceforth a reasonable presumption that any succeeding colics with similar symptoms is due to the same cause. After such an attack the patient should be carefully examined with an X-ray, and such examinations should be repeated as often as the patient suffers from renal colic, or as long as a dark shadow in the picture of the kidney indicates the presence of a calculus in that organ. The examination should be made with a so-called "soft tube." If there should appear a large shadow, indicating a large stone, with symptoms of irritation and distress, an operation is at once indicated. If small shadows should appear in the picture, the surgeon should be more cautious. It is very easy, however, to mistake the import of what one sees in a skiagraph, the more especially if one makes his diagnosis beforehand. I had a curious example of that about six weeks ago, when a lad, who held his arm in an awkward position, was brought to me to be treated for a dislocation of the shoulder. Some very intelligent physicians had seen plainly the head of the bone in the axilla with an X-ray apparatus. There was no dislocation, and under an anesthetic all stiffness and deformity disappeared. The lad, who had never had an injury, was suffering from an indiopathic inflammation of the shoulder joint. It is dangerous, therefore, to accept the evidence afforded by the X-ray without further corroborating proof.

Before entering upon the surgical treatment, it is well to say a word about the medical treatment. It may be all said in a very small chapter. There is no remedy which will dissolve a calculus in the human body. If there is no stone, but a renal colic—which depends merely upon a urinary sediment—the ingestion of large quantities of pure water will tend to wash out the injurious particles by producing a copious flow of urine. The same good result may occur when free stones are small enough to pass out through the ureter.

It is probable that all the good which has been accomplished by mineral springs has been done in this way. As a means of prophylaxis, patients suffering in this way should have their diet and drink so ordered as to render the urine as normal as may be possible. Waters holding in solution large quantities of lime salts should be strictly forbidden. Every care should be taken to keep the digestion in the best of order and to regulate the functions of the skin. It ought to be thoroughly impressed upon patients showing a tendency to the formation of stone that nothing can ever give relief when a stone too large to pass the ureter has once formed, but a surgical operation. This is the universal experience of men who have made this subject an exact study. The question arises, whether we should always operate when a stone is discovered in the kidneys or ureter. I do not hesitate to say that

the answer should be a decided "Yes." Even though a stone imbedded in the kidney substance is for the present quiescent, it will be sure sooner or later to cause serious trouble. Unfortunately the question does not come to us in actual practice in that form. Practically the surgeon has to ask himself whether he shall operate in a given case in which the presence of stone is suspected but not proven. If we have a patient who suffers from attacks of colicky pain in the loin and lateral aspect of the abdomen, without any other symptoms whatever, shall we operate? And, if so, for what? And how? If the only symptom is an occasional hemorrhage from one or the other kidney, shall we then cut down and explore the kidney? Such are the forms in which questions occur to the surgeon studying over his individual cases.

We have to decide, in doubtful cases, with reference to the individual. If a man suffering from constant pain in the loin, or some other one symptom, is willing, after full explanations, to take the risk of an operation, of doubtful utility, it is right to make an exploratory operation when we should hesitate to urge it upon a patient who is timid and demands certain results.

The conditions which make operative measures imperative are: First. A suppuration of the kidney, with failing health, or a perirenal abscess. Second. Severe and repeated hemorrhages which threaten to destroy life and can be traced to one kidney. Third. Suppression of urine. Suppurations of the kidney due to the presence of calculi too large to pass through the ureter can be relieved only by incision, extraction and drainage. The incision should be made in the loin, extra-peritoneal. The kidney should, if possible, be lifted out of its bed and stripped of the external capsule. If the stone can be felt in the pelvis, that structure should be incised. Through that orifice the ureter should be carefully examined, the kidney probed. The examination of the kidney when thus exposed, by means of the X-ray, would be of great assistance to the surgeon. It would enable him to determine positively whether other calculi existed in the organ and where they were located. If such should prove to be the case an incision should be made on the convex surface of the kidney, a little posterior to the middle line and parallel to its long axis. This cut is in the line of least vascularity, and will be followed by least hemorrhage. After extracting the stones the surgeon may either sew the kidney together or stuff its cavity with gauze until all bleeding has ceased. Where there has been no suppuration, the cut in the pelvis of the kidney, if closed by fine silk—which should not penetrate its walls—will frequently heal by first intention. When, for any reason, hemorrhage is to be feared, an elastic ligature may be temporarily passed around the pedicle and fastened with forceps, to be loosened after the operation has been done.

It may not be possible to bring the kidney to the surface, for the inflammation which has enveloped it may bind it down with hard cicatricial bands, exceedingly difficult, as well as dangerous to divide. The external capsule, too, may surround the organ in the form of a dense and adherent tumor of hard fat, making necessary a careful and tedious dissection. These cases often tax the ingenuity of the surgeon to the utmost.

The sudden suppression of urine, such as occasionally happens from calculus, and which may by reflex irritation affect the well kidney as well as the sick one, demands prompt measures.

Schede, in his chapter on stone in the kidney, speaks of men living several days with total suppression of urine, but advises not to delay action for more than forty-eight hours. My own experience is very different. I have had a number of cases after various operative procedures, and have never seen them live more than thirty-six hours after the symptoms first became manifest. There is no condition which, in my opinion, demands imperatively such prompt interference as this. The kidneys, in these cases, are prevented from exercising their function, by an enormous swelling and congestion. There is only one way of relief and that is the splitting of the internal capsule from one end to the other. Where suppression follows on stone, it is better to operate first on the diseased kidney and extract the stone. With the relief of this irritation the whole trouble may subside. If, however, that kidney should be found too diseased to warrant hope of relief, or if after twelve hours there is still no secretion of urine, the surgeon should delay no longer, but proceed to expose and operate on the well organ.

When a stone becomes lodged in the ureter it is generally, according to Israel, caught at the point where the ureter crosses the rim of the pelvis, and may often be detected there by rectal or vaginal examination.

The operation for such an impacted stone can usually be best conducted from the kidney pelvis. A sound introduced through the upper end of the ureter may push the stone into the bladder. If that fails, the incision may be carried downwards, extra-peritoneally, and the ureter exposed. The calculus may then possibly be coaxed upwards into the pelvis of the kidney, and thence extracted. If that procedure also fails the ureter may have to be cut in the direction of its length and the stone taken out through the orifice. If possible the ureteral wound should then be closed with sutures, but the wound should, even then, be drained.

NEW GROWTHS OF THE KIDNEY.

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No other chapter of pathological anatomy is at present in such a confused and unsatisfactory state as that concerning renal neoplasms. The literature of the subject represents a transitional stage, the chapters treating of tumors of the kidneys in the majority of text-books being based upon the older clinical observations, which in the light of present pathological knowledge are practically worthless. Though numerous cases of kidney neoplasms have been reported since 1650, when the condition is first mentioned (scirrhus, *Sennert*), it is at this late day impossible to gather from the literature any satisfactory presentation of the subject. The earlier reports were chiefly case records of scanty nature; the growths were apparently without discrimination designated "renal growth," "cancer," "medullary," "encephaloid," "fungous hematodes," etc., with reference only to the most prominent gross characteristic of softness or

vascularity. Microscopical examinations were only rarely made before 1880. No attempt at differentiation was thought of; carcinoma and sarcoma were considered under one head "cancer," and from these early imperfect and often incorrect observations the majority of surgical and medical text-books of to-day base their generalizations and perpetuate dicta founded upon error.

It has been left to the pathologists of recent years to make careful microscopical study of renal growths, and by a scientific classification, based upon anatomical characteristics and histogenesis, prepare the way for a more rational clinical view. The paper of Grawitz in 1883, treating of adrenal inclusions in the kidney, may be regarded as epoch-making in so far as the pathology of renal growths is concerned. Grawitz claimed that a large class of renal neoplasms described under various heads as lipoma, myxolipoma, adenoma, adeno-carcinoma, etc., were in reality inclusions of adrenal tissue in the kidney (struma lipomatodes aberrata renis), and that these growths usually benign might become foci of development of malignant tumors. The great value of Grawitz's work lies chiefly in the extraordinary stimulus given by it to the study of the pathology of renal tumors, and since 1883 there has been a flood of literature bearing upon this subject. His views were soon confirmed by Chiari, Strübing, Löwenhardt, Beneke, Horn, Marchand and many others. They were attacked, however in 1892 and 1893 by Driessen and Sudeck, who rejected the theory of adrenal origin, the former regarding the growths as endotheliomata, the latter as renal adenomata. During the same years Hansemann and Hildebrand upheld the endothelial origin of these tumors. Sudeck's paper was critically discussed by Lubarsch and Askanazy in 1894, these authors confirming the view of Grawitz. Since 1894 numerous papers have appeared in support of the theory of adrenal histogenesis for a large class of renal tumors (Ulrich, McWeeney, Jores, Lubarsch, Manasse, Gatti, Ricker, Kelly, etc.); and the term, hypernephroma, first used by Birch-Hirschfeld, has come to be the most commonly-accepted designation for this class of renal neoplasm. The direct and most important result of the discussion between the hypernephroma, adenoma and endothelioma schools was the tremendous impetus given to careful histological study of renal growths and the resulting attempts at a rational classification according to histogenesis.

In 1898 appeared Kelynack's "Renal Growths," the first reference book dealing exclusively with this subject. During the last several years an increasing number of cases have been carefuly studied by pathologists, and the pathology of the subject has been brought much nearer to a satisfactory position. At the present time investigators are busied with the problems of histogenesis rather than with the general characteristics of renal growths, the latter having become relatively familiar. Until such histogenetic problems are satisfactorily solved it is clear that we can have no satisfactory working classification of the neoplasms of the kidney. The complex and as yet somewhat obscure embryology of this organ makes the problem a very difficult one. In attempting such a classification it must be borne in mind that it is only a temporary arrangement based upon our knowledge of to-day and by

the discovery of to-morrow subject to alteration. This condition, common to all branches of scientific investigation, must be especially emphasized with regard to this subject. With such reservation, I offer the following classification of renal growths according to their histogenesis:

CLASSIFICATION OF KIDNEY NEOPLASMS.

KIDNEY NEOPLASMS.

1. Origin from Epithelium.
   - 1. Glomerular. / 2. Tubular. / 3. Pelvic.
     - *a.* Benign. — Adenoma. / Cystoma. / Benign Papilloma.
     - *b.* Malignant. — Carcinoma.

2. Origin from Stroma.
   - 1. Connective Tissues.
     - *a.* Capsular. / *b.* Interstitial.
       - *a.* Benign. — Fibroma. / Fibrolipoma. / Lipoma. / Myxoma. / Leiomyoma.
       - *b.* Malignant. — Simple Sarcoma.
   - 2. Endothelium and Perithelium.
     - *a.* Lymph-vessels.
       - *a.* Benign. — Lymphangioma.
       - *b.* Malignant. — Endothelioma.
     - *b.* Blood-vessels.
       - *a.* Benign. — Hemangioma.
       - *b.* Malignant. — Angiosarcoma. / Endothelioma. / Perithelioma.

3. Origin from Embryonal Inclusions, Wolffian Body, etc.
   - 1. Simple Teratoma.
     - *a.* Benign. — Lipoma. / Leiomyoma. / Rhabdomyoma. / Hypernephroma.
     - *b.* Malignant. — Rhabdomyosarcoma. / Malignant Hypernephroma.
   - 2. Complex Teratoma. — *a.* Benign. / *b.* Malignant. (Mixed Sarcomata).

Occurrence.—By the majority of writers primary renal tumors are regarded as being of comparatively rare occurrence. The statistics collected by Kelynack in 1898 show percentages of occurrence varying from 0.19 to 4.6. Hansemann stands almost alone in asserting their relative frequency. In a recent article, "Ueber Nierengeschwülste," he declares that there is hardly another organ of the body in which tumors are of such frequent and manifold occurrence as in the kidney. He explains their apparent rarity by the fact that only comparatively few of the primary renal tumors give rise to clinical symptoms, the majority being insignificant growths, discovered only at autopsy. With reference to the relative occurrence of the different forms of primary renal tumors, no reliable statistics exist at present. The statements found in the text-books regarding this point are for the greater part based upon incorrect diagnoses. By many writers it is stated that carcinoma is the most common renal neoplasm; in reality, it is of very rare occurrence, the mistake being founded upon the older clinical diagnoses by which the term cancer was indiscriminately applied to hypernephroma, adenoma and endothelioma. That kidney growths are relatively frequent is borne out by our experience in the University laboratory of pathology, where they were found in seven out of one hundred autopsies, in two cases the growth being the cause of death, the other five occurring as autopsy findings

without previous symptoms. Of these seven cases two were lipomata, one carcinoma and four hypernephroma. In addition to these autopsy cases five specimens of primary renal tumor have been sent to this laboratory for diagnosis during the last five years, one lipoma, one spindle-cell sarcoma, one malignant teratoma, and two hypernephromas.

TUMORS OF EPITHELIAL ORIGIN. *Adenoma.*—True adenomata arising from the renal tubules are rare, if the small adenomatous hyperplasias found in contracted kidneys are excluded. The latter are of the nature of a compensatory hyperplasia, and between them and the true adenomata no definite histological line can be drawn, as is the case with compensatory hyperplasias in other organs (cirrhotic liver). The true renal adenomata are small, rarely larger than a hazel nut, white or grayish, and are found in the cortex, usually in connection with the convoluted tubules. Only rarely do they reach a large size; not infrequently they become cystic. Many show a definite capsule of connective tissue sharply outlining them from the surrounding kidney parenchyma. The significance of the capsule is not clear; it may arise from the surrounding tissues as the result of inflammatory reaction, or if an essential part of the tumor the adenoma is to be explained as arising from an isolated anlage of kidney substance. Two histological varieties of renal adenoma are found, the simple tubular and the papilliferous. The cells lining the tubules or covering the papillæ resemble the epithelium of the convoluted tubules, and may occasionally be found to be directly continuous with the epithelium of one of these tubules. Usually the cells are somewhat flatter and lack the radial striation of the "Bürstensaum." About the adenoma the kidney substance is more or less compressed and presents the appearance of a primary contracted kidney. Clinically the adenomata are without significance; they produce no symptoms and are usually found only at autopsy. Retrograde changes may occur in them, and hemorrhage into the tubules is not infrequent.

Cystadenoma.—Cystic tumors lined with epithelium are probably the most common variety of renal neoplasm. They are usually small and often possess a capsule. Two varieties occur, the simple cystoma and the papilliferous cystoma (papillary cystadenoma, papilloma, etc.). The papilliferous form is the more common. The papillæ may be very thick and broad, or very fine and narrow, and often so interlaced that sections of the growth appear as an adenocarcinoma or adenoma, the cyst space being obliterated by the papillæ. The latter form is very likely to become carcinomatous, often reaching a large size, breaking through into the veins and setting up metastases. The papillæ of both varieties are covered with flattened, cubical or low columnar epithelium. Retrograde changes, such as fatty and mucoid degeneration, necrosis, hemorrhage, etc., are of frequent occurrence. The origin of the cystadenoma may be either from simple retention cysts or simple adenomata, the dilatation of the tubules of the latter by secretions being followed by hyperpasia of the elements forming their walls. Transition forms may be found, and it is possible to trace all stages of development from simple adenoma through the papilliferous form to adenocarcinoma. The adenocystomata of the kidney show striking analogies to those

of the ovary. The smaller renal cystadenomata are unimportant clinically, as they give rise to no symptoms. The larger malignant forms are to be classed with the carcinomata.

Carcinoma.—True carcinoma arising from renal epithelium is rare, the great majority of cases recorded in the literature as renal cancer being undoubtedly hypernephromas, sarcoma or adenoma. In the great majority of cases of renal carcinoma the tumor takes its origin from the epithelium of the renal tubules, or from the epithelium of a papilliferous cystadenoma (malignant papilliferous cystadenoma). Adenocarcinoma is probably the most common variety, medullary second in frequency, scirrhus and colloid rare. The growth may be circumscribed or diffuse. In the former variety, no matter how large the cancer mass, some remains of kidney tissue may be found forming a capsule about it. The diffuse cancer is more rare, it is usually scirrhus; the kidney may retain its characteristic form, even though three times its normal size. On section the appearance is that of a primary contracted kidney, the outlines of kidney tissue being destroyed. Microscopically the entire tissue is carcinomatous, very few remains of glomeruli and tubules are found. Both circumscribed and diffuse forms may extend into the pelvis as polypoid growths, which may break through the capsule and invade neighboring tissues. Necrotic changes, hemorrhage, etc., occur as in other carcinomata. Only three cases have been reported of primary renal cancer arising in the glomeruli, those of Abram, Hildebrand and Sharkey. In Abram's case the parietal layer of Bowman's chamber was covered with several layers of deeply stained columnar cells, metastases were present in the liver, bones, etc. It is probable that some congenital anomaly played a part in the development of this most interesting condition. Squamous-celled (cancroid) epithelioma has been reported a few times as arising from the epithelium of the kidney pelvis, but these cases are of somewhat doubtful nature. In all forms of renal cancer metastasis is of frequent occurrence, being found most often in the lungs, owing to the tendency of the growth to invade the renal vein and ascending vena cava. Except in the case of the papilliferous adenocarcinoma rupture through the fibrous capsule, is very rare.

Tumors Arising from Stroma. *Benigh Connective Tissue Growths.*—These are of relatively rare occurrence in the kidney. They are usually small and only rarely are of clinical importance. *Fibroma.* These are usually found as small grayish-white bodies of the size of a pin-head or pea, in the cortex, arising from the capsule or just beneath the capsule, in the interstitial tissue of the parenchyma, or more commonly in the base of the medullary pyramids. They are harder, more circumscribed and more glistening than tubercles for which they may be mistaken. In very rare instances they may reach a very large size, one weighing 37½ pounds having been reported. They may be single or multiple, and are usually encapsulated. Histologically they consist of fibrous connective tissue which is often mixed with large spindle cells resembling unstriped muscle. By many writers these are regarded as *fibromyomata* analogous to uterine fibroids. The smaller fibromata of the kidney are probably for the greater part of cicatricial origin. Myxomatous and cystic degeneration and calcification

are of frequent occurrence in the larger growths. *Lipoma.* The renal tumors composed of true adipose tissue are usually of small size and are most commonly found beneath the capsule. They are often multiple. Many of them are to be explained as congenital inclusions of the fatty capsule; others undoubtedly arise from fibromata (*fibrolipoma*) or from the connective tissue around the larger blood vessels. Only rarely do they become large enough to excite symptoms sufficient to call for operative interference. In one remarkable case reported by the writer a fibrolipomatous growth weighing two pounds was found as a large lobulated mass filling up the greatly-dilated pelvis of the left kidney and sending a prolongation of tumor tissue down into the distended ureter. The only remains of kidney tissue were found in the thin capsule covering the growth. *Myxoma* is of very rare occurrence in the kidney, but both the fibroma and fibrolipoma may undergo myxomatous change (*myxofibroma,* etc.). The significance is the same as in the case of the fibroma and lipoma. *Osteoma* and *Chondroma* have been reported as occurring in the kidney but it is probable that these growths were of teratoid nature. *Leiomyomata* occur as rare tumors of the kidney, arising either from unstriped muscle of the capsule or blood vessels. They may be multiple or single. The unstriped muscle may be mixed with connective tissue (*myofibroma*) or fat tissue (*leiomyolipoma*). These growths may be explained as arising from congenital inclusions of capsular anlage. *Lymphangioma* is of very rare occurrence in the kidney (*lymphangioma cysticum*). The *Hemangioma cavernosum* is more commonly met with in the form of dark-red encapsulated masses varying in size from a pea to a hen's egg. They are found underneath the capsule or in the upper part of the medullary pyramids. They are identical in structure with the cavernous angiomata of the liver, though many of them appear to be rather of the nature of local capillary dilatations than true tumors. All stages of this capillary dilatation may be observed.

Malignant Tumors Arising from Stroma. *Sarcoma.*—The simple sarcoma arising from the kidney stroma is of much more rare occurrence than carcinoma of the kidney. The majority of renal growths usually considered as sarcomata are mixed tumors and should be classed with the malignant teratomata. The simple sarcomata are usually spindle celled, though the round celled variety has also been observed. They form diffusely-infiltrating growths, only rarely are they nodular. Portions of kidney tissue apparently normal may be found throughout the tumor mass. The growth may take its origin from the capsule, interstitial substance of the parenchyma or from the pelvis. The growth is usually very rapid, and the tumor quickly undergoes degeneration and necrosis as in the case of carcinoma. The spindle cell variety is of slower growth than the round cell. On cross-section many of the growths show a much variegated surface due to hemorrhages, degenerations, etc. Many of the renal sarcomata are *Angiosarcomata,* arising either from the endothelium or perithelium of the vessels. These tumors are characterized by an alveolar arrangement, cords or cylinders of cells being grouped around ectatic blood vessels, the tumor-cells forming the wall of the vessel. The cells of these growths are usually spindle shaped. The growth usually undergoes rapid necrosis, owing to the obliteration of

the vessels through cell-proliferation, so that often the only living portion of the tumor is found at the periphery, the central portion being entirely necrosed. Metastasis of renal sarcomata is less common than in the case of carcinomata, though invasion of the renal veins by sarcoma is as common an event as in carcinoma.

Tumors Arising from Embryonal Inclusions. *Simple Teratoma. Dermoid Cysts* of the kidney have been reported, but are extremely rare. As stated above, the *Fibroma, Lipoma* and *Leiomyoma* may be explained as heterotopic inclusions of capsular anlage. Simple inclusions of striped muscle may also occur (*rhabdomyoma*). But by far the most common and important of the simple teratomata and one of the most common renal tumors is the *hypernephroma*, a growth consisting of tissue resembling adrenal structure (struma lipomatodes aberrata renis, "adrenal rest," etc.). The close relationship between the early stages of embryonic development of adrenal and kidney makes possible the occurrence of such inclusions. The adrenal may sometimes be entirely or for the greater part included beneath the kidney capsule. "Adrenal rests" usually appear as round, white or yellowish masses resembling adipose tissue, encapsulated and sharply outlined from the surrounding kidney tissue. They are usually located in the cortex just beneath the capsule but may occur in any portion, even in the medulla. Microscopically, they consist of a fine stroma containing a net-work of capillaries in the meshes of which cords or strands of cells resembling adrenal cells are present. These cells may be round, polygonal or even columnar, they contain fat and glycogen droplets, a great individual variation is seen, but on the whole the cells resemble those of the adrenal cortex, particularly those of the glomerular zone, only rarely are they like those of the medulla. The nucleolus has a metachromatatic character, staining differently from the nucleus. Hypernephromas are rich in lecithin, in this respect resembling also adrenal tissue. The growths arising from them appear to be identical with those primary in the adrenals. Like these they may be benign or malignant. They show a tendency to penetrate early into the veins and to give rise to metastases. They show the same necrotic changes seen in the adrenal tumors, and like the latter often form pseudocysts filled with brownish pultaceous material, the only living portion of the growth being at the periphery. Giant cells similar to those in the adrenals are often present. No transition forms between renal tissue and these tumors are ever found. The close relationship of the cells to the capillaries, the tumor cells resting directly upon the endothelium, has led many writers to class these growths with the endotheliomata or peritheliomata. By other writers they are regarded as adenomata derived from the renal tubules. At present they are best classed as teratomata, the majority of authorities agreeing in considering their origin to be from embryonal anlage, either adrenal or from remains of the Wolffian body. Though the great majority of hypernephromas are benign, being found only at autopsy, they very frequently become malignant, giving rise to metastases, chiefly in the lungs. It cannot be denied that all of them have malignant potentialities.

Complex Teratomata.—The complex growths containing cartilage, bone, muscle and nerve tissue are to be classed in this group. While the origin of these interesting growths is not as yet definitely

ascertained they are clearly of teratoid nature. They may arise from Wolffian "rests" or from earlier embryonic structures. Clinically, they appear as sarcoma and are usually designated *"mixed sarcoma,"* or *"embryonal adenosarcoma."* They occur nearly always in children and are to be regarded as congenital growths. Only rarely have they been found in adults. They may grow slowly or rapidly, the gross appearance is very varied owing to the many degenerative processes that may be present. Often they reach a very large size. They are usually sharply outlined from the kidney tissue which is pushed aside and through pressure becomes atrophied rather than being directly destroyed. The microscopical picture is very complicated. Grandular structures resembling kidney tubules are found, between these a stroma made up of round or spindle cells, containing striped and unstriped muscle, islands of bone, cartilage or myxomatous tissue, ganglion cells or neuroglia. The presence of striped muscle forms one of the most striking features of these growths and they are frequently called *rhabdomyosarcomas.* The presence of the muscle is variously explained as derived from the Wolffian body or the primitive myotome, or as a metaplasia from unstriped muscle. The mixed character of the tumor has often led to the diagnosis of carcinoma. As true renal carcinoma or sarcoma is very rare in early life, it may be taken as a principle that the malignant renal growths of children are of the nature of malignant teratoma. Metastasis from these growths may occur early, usually into the lungs. They are more often of simple sarcomatous nature, and rarely show the mixed character of the primary.

SECONDARY GROWTHS OF THE KIDNEY.—Both carcinoma and sarcoma may appear in the kidney as metastatic growths from primaries situated elsewhere in the body. Secondary carcinoma is often multiple, and forms round nodules in the cortex, most frequently in the glomeruli, the metastasis being hematogenous. The microscopical structure corresponds to that of the primary. Secondary sarcoma forms round nodules in the cortex, usually multiple, the number of secondaries being sometimes very great. Retrograde metastasis of either sarcoma or carcinoma into the kidney may occur through the renal veins from the inferior vena cava. In such cases the secondaries are most often found near the kidney pelvis.

DIAGNOSIS.—Renal growths often produce no symptoms at all. The most characteristic signs are the presence of a tumor in the right or left lateral regions displacing the colon forward and inward. Such a tumor may be caused by a growth of the adrenal, kidney, Wolffian body or perirenal tissues. The outward displacement of the colon is a rare exception. There may be fluctuation. When this is present aspiration for diagnostic purposes is indicated. It must be remembered that lipoma and myxoma may give fluctuation and yet yield no fluid on aspiration. A cystic tumor filled with brownish pultaceous material is indicative in the great majority of cases of hypernephroma. Of the urinary signs hematuria and the presence of bits of tumor tissue in the urinary sediment are the signs of most vital importance. In suspected cases the urine should be centrifugated, the sediment fixed on coverglasses by the alcohol-ether method, stained with hematoxylin and eosin, and

examined for mitotic figures. The presence of numerous mitoses, particularly of atypical forms, may be taken as strong evidence of the existence of malignant growth of the urinary tract.

PROGNOSIS.—This depends upon the pathology of the growth. It is favorable in the case of the benign connective tissue tumors, the encapsulated adenomata, benign papilloma of the pelvis, the majority of hypernephromas, less favorable in the case of sarcoma and carcinoma without metastases or extension, wholly unfavorable in the case of the malignant teratomata and carcinoma and sarcoma with metastases. Secondary cancer and sarcoma of the kidney are likewise hopeless.

TREATMENT.—This is, of course, surgical. Modern pathology has, however, produced great modifications, and the successful treatment of renal growths depends largely upon their pathological nature. Surgical interference is especially indicated in the case of hypernephroma. Small growths of this nature may be resected. As hypernephromas were formerly classed to a great extent with the carcinomata or sarcomata, the prognosis in general of renal tumors has been greatly modified. In the case of sarcoma and carcinoma the lymph glands in the neighborhood of the kidney hilum are to be removed in connection with the entire organ.

A charter has been granted to the Bay County Medical Society, which was recently organized. The following officers were elected: V. L. Tupper, President; E. A. Hoyt, Vice-President; M. Gallagher, Secretary; C. H. Baker, Treasurer. All these are Bay City men.

ACUTE KIDNEY INFECTIONS.

THEODORE A. FELCH,
Ishpeming, Mich.

It may be well to state at the outset that this paper consists of a compilation of the writings of others, which I have been able to cull from different books and magazines, and to that extent expresses the recent thoughts upon this obscure subject. As the title indicates, we are not to consider those inflammations of the kidneys caused by irritant poisons as mercury, etc., perhaps not even those following exposure to cold and wet, although the manner in which nephritis is produced in these cases is not fully understood. Only those conditions directly or indirectly bacterial in origin will be considered. Between these direct and indirect effects it is at present impossible to discriminate; even when the organisms have been proved to pass through the kidneys, escaping with the urine, the role played by the organism itself cannot be sharply differentiated from that of the toxic products of its life activity.

In the infections of the kidney there may be involvement of the kidney substance proper (nephritis), of the mucous membrane of the pelvis of the kidney (pyelitis), or of the capsule and the peripheral portion (perinephritis).

We will deal with the first alone. For convenience a classification may be made into:—

1st. Primary infectious nephritis.

2nd. Acute nephritis secondary to an infectious disease.

It must be understood, however, that no attempt is made to draw a sharp line of distinction. In the first class may be grouped those cases in

which the kidneys are the seat of inflammatory changes, caused by micro-organism carried by the blood current, whose point of entrance to the system cannot be definitely traced. Kertz observes that the invasion of the blood by disease germs may assume various clinical aspects. In one form the blood may become infected without an initial local effect, as in malaria and relapsing typhus. In another form there may be typical infection of the blood from a local point of invasion, as in anthrax and typhoid fever. The germs may be carried into the blood by the leucocytes, as in gonorrhœa and probably also in lepra, or swept into the lymph current, as in infection from strepto, and diplo-cocci, or penetrate through some vascular lesion, as in tuberculosis or plague. The invasion of the blood may be secondary to another infection, as in small-pox, measles or scarlet fever.

Many organisms have been found in these cases, most frequently streptococci and staphylococci, the former being sometimes present in enormous numbers in the kidney tissues. From a series of eleven cases, in which strepticocci were found in the urine, Mannaberg succeeded in isolating an organism, which produced an acute hemorrhagic nephritis when injected into the circulation of the lower animals. The association of acute interstitial nephritis with acute infection suggests a microbic origin, but bacteriologic examination has, for the most part, proved negative. Thus of twenty-four cases of diphtheria, six were sterile, in eleven the colon bacillus, in one the staphylococcus aureus, in five the streptococcus, in eight the diphtheria bacillus, and in one the bacillus fœtidus, were found. In five cases of scarlet fever the colon bacillus was found in two, the streptococcus in three, and the staphylococcus in one. In eight cases of mixed infection of diphtheria with scarlet fever or measles the kidney was sterile in two, the streptococcus and colon bacillus being found in the others. Not much weight can be given to the colon bacillus in these cases upon post-mortem examination, and as for the other bacteria, they are found in the kidney in the same proportion in cases in which the lesions of acute interstitial nephritis were absent.

But the great majority of the cases of acute kidney infection will fall under the head of the second class, viz., acute nephritis secondary to an infectious disease. Any of the infectious processes which tend to the production of the general diseases or to the formation of metastatic foci, may result in inflammatory changes in the kidney, even when the original disease has been mild or abortive in character. Generally speaking, however, much depends upon the severity of the original infection. The cases of typhoid fever, small-pox, erysipelas-septicæmia, etc., in which acute nephritis develops, are usually very severe, and when a fatal termination occurs, the influence the nephritis has exerted in producing this result cannot be accurately weighed. In all of these infections, except scarlet fever and diphtheria, acute nephritis is an occasional complication and must be watched for and guarded against, but figures as to the relative frequency of its occurrence give no results of any special value. But in scarlet fever and diphtheria it presents itself with such frequency that statistics are of considerable interest. Thus in 4,343 cases of scarlatina recently reported in American and for-

eign literature, acute nephritis developed in 359, or 8.3 per cent. In only a portion of these cases was the proportion developing uræmic noted. From these figures it would appear that uræmia occurs in about 13 per cent. of the cases of scarlatinal nephritis, and that the mortality in the uræmic cases is over 50 per cent. How large a part nephritis plays in the fatal issue of scarlet fever may be inferred from the report of Jaeger, who found severe nephritis manifest, microscopically, in 21 out of 47 autopsies in scarlet fever cases, or 44.6 per cent.

The appearance of the kidney in scarlet fever varies with the stage of the disease. In patients that have died early the kidney presents very slight microscopic changes, but microscopically exhibits degeneration of the epithelium of the convoluted tubules. If death has occurred at the height of the disease, the kidney is usually enlarged, flaccid, and either pale or red from hemorrhages and congestion (the flaccid large white kidney and the flaccid large hemorrhagic kidney of Friedlander).

The most frequent type of nephritis in scarlet fever is that known as post-scarlatinal nephritis; this is, as a rule, a glomerulonephritis. In some cases interstitial changes are found, congestion of the vessels and fatty degeneration of the epithelium are present in practically all cases; glomular lesions are, however, not a necessity, and were absent in a series of cases studied by Pearce (Hektoen). After diphtheria, nephritis is seen in about six per cent. of all cases, and is a most serious complication; out of 69 cases reported by Heinze, 48 died, nearly 70 per cent. Jaeger reports 28 cases of severe nephritis in 615 diphtheria autopsies, or 4.5 per cent., a striking contrast to his figures in scarlet fever given above. The renal changes in diphtheria are not characteristic. Degenerative changes in the epithelium are always present, frequently with more or less pronounced alteration in the interstitial tissue (accumulations of plasma cells), and in the glomeruli. Glomerulonephritis is especially common in older children and in cases of prolonged duration. The lesions are not due to the bacteria, but to the toxic substances in the blood. The diphtheria bacillus may, however, be present in the kidney or culture (Hektoen).

The figures given above are apart from the transient albuminuria, which is seen in any of the severe infections, especially when accompanied by high temperature. In these cases there is present what has been described as acute parenchymatous degeneration of the kidney, due, undoubtedly, to toxins, altered products of metabolism and prolonged high temperature. This condition is the rule in typhoid and yellow fevers; is very common in scarlet fever, where it occurs in from 20 to 90 per cent. of all cases, according to various authors; in smallpox and diphtheria, and in severe cases of influenza, where the proportion ranges from 35 per cent. (Senator) to 85 per cent. (Brands). In the other infections it is less common, but by no means rare.

The conditions which predispose to the development of a secondary nephritis are varied and but little understood. Taking scarlet fever as an example, the percentage of cases complicated by nephritis varies enormously in different epidemics; in some it may be but two or three per cent., while in others it may be forty or fifty per cent, the average being probably between four and ten per cent. While it is most common after a severe

infection, it may follow a very slight one. The intensity of the eruption is no index, for it may occur where the eruption has been very limited or absent. Chilling of the surface may induce an attack, but in many cases this has not occurred. The too early use of solid foods is often responsible for the condition, and perhaps to greater care in this respect is due the decrease in the percentage of cases which some writers have noted in recent years.

As scarlatina and diphtheria, the most frequent causes of acute nephritis, are more prevalent among children, it follows naturally that the condition is seen more often among the young. It is worthy of mention that in twelve cases of acute nephritis following influenza, collected from the literature by Freeman, eight were under 18 years of age. However, no age is exempt.

The greater exposure to which adult males are subjected may account for the greater frequency with which they are attacked, but this would hardly apply to children, and with them also the males show a higher percentage of cases of renal involvement in many epidemics.

SURGERY OF THE KIDNEY IN TUBERCULAR CONDITIONS.

W. H. HAUGHEY,
Battle Creek, Mich.

Of the route by which the bacillus tuberculosis finds ingress to the kidney, I shall have but little to say; though personally I think it to be through the lymphatics. That it does occasionally find its way to and make its habitat in this organ, has been demonstrated many times. Fortunately it is unusual for both kidneys to be affected at the same time, thus making it possible, where but one is involved, to remove it and frequently restore the patient to permanent health, or at least give an indefinite extension to his lease of life. But the object of this paper is more a study of the operation and its technique than it is one of pathology.

Two years ago, at the meeting of the American Medical Association at Atlantic City, the last day of the sessions and the last end of the last hour in the surgical section, as the chairman's gavel was about to announce the final adjournment to the dozen or fifteen faithful ones who had sat through the entire session, Dr. Howard A. Kelly, of Baltimore, Md., came hurrying in accompanied by two or three assistants, and asked permision to present to the section before its adjournment an interesting case and exhibit a pathological specimen illustrating his operation for removal of the kidney and ureter. His request being granted, the specimen was shown and proved to be a kidney and ureter entire, with section of bladder containing urethral implantation.

Dr. Kelly gave the following history: Patient, lady of about twenty-one or twenty-two years; complained of severe urethral irritation, with much pain on micturition; had been treated by several physicians with no relief. Dr. Kelly made a diagnosis of tuberculous kidney, and by catheterization of the ureters located all the trouble on one side, I think the left. At the operation which followed he not only removed the affected kidney, but the entire ureter, including a section of the urinary bladder surrounding its implantation, and closed the bladder with his double row of sutures.

He gave as his reasons for removing so much, a desire to take away all, or as much as possible of the diseased tissues, in order to more surely prevent return of the tubercular trouble. After the operation he was called to Boston and was absent from Baltimore something over three days. On his return he found his patient dead. The doctor stated that he regretted exceedingly the fact of his being called away at that particular time, as the autopsy showed that the suturing in the bladder had given *away*, allowing the urine to escape, inducing toxemia and death, which he thought might have been averted had he been there to reopen the wound and again suture the bladder.

The above case, reported as it was, the last thing before adjournment, received no discussion. I have always marveled at the temerity shown in this operation, and wondered why it was necessary to remove so much, in fact, why open the bladder at all? And above all, why leave the patient so long without a competent surgeon on the ground with full authority to reopen and repair any damage that might take place?

Through the kindness of Dr. T. E. Sands, I have been privileged to operate on two similar cases of tuberculous kidney. No. 1: Patient, a young married woman of about twenty-one or twenty-two years. Much emaciated. Dry yellow skin, with cilla pointing forward; was passing purulent urine, had mid-day chills, followed by fever and night sweats, irritable, peevish and fretful. Urethral meatus red, swollen and very sore, causing excruciating pain on micturition. Pus found only in urine from right ureter. Temperature at time of operation 103, pulse about 120. Kidney and ureter to within about one inch of the bladder was removed. Patient made a perfect recovery, is still living and in excellent health.

Case No. 2: Patient, a lady about forty-two or forty-three years of age, presented practically the same symptoms as No. 1, with same redness, swelling and irritability of urethra. Trouble confined to one kidney, which, with most of the ureter, was removed. A slow but perfect recovery followed, and now after an elapse of about four years both patients are enjoying excellent health.

The epithelium of the ureters, bladder and urethra, being of the transitional variety and four layers in thickness, is so arranged as to *keep out* or *prevent* absorption. This is a wise provision of nature to prevent re-absorption of urine (an excrementitious substance) which comes in contact with or passes over these membranes. With this arrangement of epithelium, and the reason for it so evident, it becomes an interesting question to ask, what probability there is for the bacillus tuberculosis to pass through these four layers, and gain admission to the general systemic circulation? And is that probability sufficiently great to warrant the additional risk incurred by opening the bladder to remove another inch or two of the ureter, when the *bladder* and entire *urethra* (which of course cannot be removed) have been exposed to the action of the germs equally as much as the ureter itself?

In neither case reported by me was there soreness or inflammation inside the urethra or bladder, but only at the urethral meatus, which was red, swollen and irritable at the point where the mucous membrane unites with the skin,and this soreness extended out on the skin a short distance, but all cleared up and became well when patients recovered from their nephrectomies.

Discussion

HENEAGE GIBBES, DETROIT.

In regard to new growths in the kidney, I have had some interesting points in recent cases. We find it stated by good authorities that in some of the large tumors, involving the kidney, supra-renal tissue is sometimes found. This is undoubtedly the case, and I would go farther and say that some of these large tumors are entirely composed of supra-renal tissue. Several years ago, in 1883 I think, I discovered a number of accessory adrenals in the connective tissue surrounding the kidney, and some were of considerable size. From observations I have made on these accessory glands I am inclined to think that they are more prone to hypertrophic growth than the true supra-renal. These large growths involve and sometimes destroy the kidney; they are made up of cells in masses, which are polymorphous, and cells in a more or less tube-like form, and here the cells are distinctly columnar. This is practically the structure of the accessory adrenals, as they are not so highly differentiated as in the true organ. As civilization advances we may find it necessary to remove these accessory glands with the vermiform appendix in children as regularly as we have them vaccinated.

In regard to adenomata of the kidney, I think the term is somewhat loosely used. If we examine a growth and find it consists of large cells on a delicate basement membrane, with fine papillæ projecting into the cavities, also covered by the same cells, we may conclude that it is an adenoma gone back more or less to developmental conditions, especially as we find identical growths in the uterus. But when we find large cells piled up irregularly two or three or more deep on the basement membrane, without any papillary ingrowths, I think we are approaching perilously near carcinoma. In some cases I have traced these cells to those of the convoluted tubes; that is, I have done this as certainly as it is possible to. I have more than once read papers describing sarcoma of the kidney in the new-born and afterward obtained a portion of the growth for examination. Some of these cases are not sarcoma at all, but consist of a combination of the Wolffian body, with true kidney, and represent the appearance of the organ about the sixth or seventh week of intrauterine life. They consist of cysts with very delicate walls, having a beautiful arrangement of flat nucleated cells on a homogeneous basement membrane; in some, glomeruli can be made out, and in others there is some appearance of kidney tissue. They are examples of arrested development. These cases have also been called carcinoma. Cystic change may commence in intrauterine life and be continued after birth for many years, the kidney reaching an enormous size. In these cases there is no malignant growth and normal kidney tissue exists in the small amount of solid tissue betwen the numerous cysts.

E. B. SMITH, DETROIT.

The papers have been good and they have brought out some practical points. A point made by one of the speakers was one that I intended to make, but I also wish to make an additional point on the same line, and that is this, we have not only tuberculosis of one kidney, but are apt to have tuberculosis of the other, a malignancy of one kidney and a malignancy of the other; also with sepsis of one kidney we are very apt, if it becomes of chronic duration, to have sepsis of the other. Now, if that is so, then the question comes down to a practical one: We should make our diagnosis as quickly as possible, as early in the disease as possible, and an examination helps us make the diagnosis. In other diseases, diseases of the abdomen, or any lesions or any of the different manifestations in the abdomen, we open the abdomen and make an exploratory incision. Why not do it here and just the same? I have found when I had a case of stone in the kidney that I have been able to make, or rather to confirm my diagnosis of stone in the kidney, by placing the patient in a proper position and by double manipulation, by palpating with one of my hands upon the back and the other hand upon the abdomen, getting the kidney between the two hands and rotating it, or passing it from one hand to the other; the patient then if you talk to him will complain either at the time or afterwards of certain pains, reflex pains that you can get no other way. I think in two cases I have been able to confirm the diagnosis in this way.

I do not think we are quite particular enough about sounding the ureters. In two cases at St. Mary's Hospital I have been able to find pus by catheterizing the ureters, and I have been able to dilate the ureters in one of the cases; in another case I have been able to locate the obstruction, and finding it, relieve the conditions without an operation. I think we should catheterize the ureters and do it frequently; it is a procedure that is easily done, after you have done it once or twice with one or two different patients; sometimes you will find one that is very easy, and the next patient you attempt it upon you have to make the attempt two or three times before you are able to do it; any of us ought to be able to catheterize the ureters with a little practice, and

then you can tell what you have and which kidney is involved; after you have found pus at different times, and are unable to relieve the condition, you are justified in cutting down and making an exploratory operation, and if it is tuberculosis, a new growth, or a stone, then you can proceed with your operation—an extra peritoneal incision does no harm. I have been unable in one case to locate stone in the kidney by repeated punctures; I knew the stone was there, it was located for me, yet I was unable by using a small fine instrument to strike that stone. Upon the other hand, I had a case in which the calculus was in the urethra; my sound passed that calculus at three different sittings, and yet the operation revealed a calculus; it was fusiform in shape. We may dilate the urethra as large as a small finger to allow the urine to pass. I urge that we make examinations of the ureters, by catheter, and sounds, and if no calculus or stricture be found, would advise exploratory incision.

F. W. ROBBINS, DETROIT.

I want to make reference to a few points, and the first is the interesting fact that there may be localized tuberculosis in the genito-urinary organs without systemic infection, and this is nicely brought out where, after operation and removal of a tuberculous kidney, the patient seems to recover perfect health. We know where there is localized tuberculosis it must come through a general infection, but the general infection is probably localized on account of some local congestion or injury to some local part. Where the tuberculosis has settled in the testicle, and that has been removed, the body itself is able to take care of the few floating bacilli that may be existing in the blood. This being so, when we have a case of probable tuberculosis localized to parts that can be removed, it seems to me right that we should remove that local part, believing that the tuberculosis has not become general, and the localized infection being removed, the patient has a fair chance to recover permanent health.

Another case that I wanted to refer to in relation to stone in the kidney and the ureter was that of a case reported by Dr. Kelly a week or two ago, which is of interest on account of the fact that the stone was one-half within the bladder and one-half within the ureter; the stone was an inch and a half or two inches in length, protruding into the bladder, and was so large that he was not able with forceps to break it up, and the method that he employed was this: Using a knife with a blade nearly at a right angle to the shaft, he passed this knife into the vagina, to the cervex, and directly through into the bladder, cutting down an inch and a half, and then removing the stone through the vaginal route, being able in that way to get at the ureter with perfect ease.

Another thing that I wish to refer to is the remarks made by Dr. Smith in speaking of ureteral catherization: If he means to say it is easy in women, that is true; if he means to say that ureteral catheterization in a male is easy, he is mistaken; they can be catheterized in many cases, but there are cases where you cannot catheterize the male ureter. In cases where the prostate is enlarged, drawing the bladder up and forward, pulling the ureter down and forward, so that the ureter cannot be seen, a ureteral catheter cannot be entered.

P. M. HICKEY, DETROIT.

In listening to Dr. McGraw's interesting and valuable paper, I was particularly impressed with the one statement which the doctor made in regard to the use of the x-ray in the diagnosis of renal calculi, namely, the necessity of a proper interpretation of the skiagraph. This is a point which I think should be emphasized. Some discredit has been thrown upon the x-ray by different writers and every once in a while we hear some caustic remarks about the so-called fallacy of the x-ray. In those cases where I had the chance to investigate the cause of such remarks, I found that the fault was in the observer, who failed to appreciate the values of the shadows depicted. In work with the microscope, opthalmascope, spectrscope, or other instruments of precision, it is necessary that the observer master the technique of the instrument and acquire a certain experience before his opinion is of value. The same need of experience is ncessary in the interpretation of what is seen with the fluoroscope or in the skiagraph. It is necessary to always bear in mind that when working with the x-ray that we are working with shadows and to constantly consider the conditions which may be present to cause such shadows. If this point is borne in mind. I think that there would be very little criticism and few remarks in regard to the fallacy of the x-ray.

With regard to the future value of the x-ray in the diagnosis of renal calculi, it seems very probable that the technique will be perfected and the corresponding results will be much more valuable. Some of the work which has been done by a few men in this country, both in the diagnosis of renal and biliary calculi, is certainly most promising.

J. H. CARSTENS, DETROIT.

I am glad Dr. Hickey mentioned that about the radiograph. We are often disappointed in these pictures, and perhaps it is the fault of the

men who handle the apparatus; they have not the practice. The thing is in the development stage, and probably in the course of time we will be able to do more with the pictures.

The paper of Dr. McGraw suggested a large number of points on the diagnosis that I wanted to mention. Some time ago I had the queerest kind of a case of stone in the kidney; a doctor brought the patient to me and said he had stone in the kidney; he had I don't know how many attacks, and it was the clearest kind of a case; the symptoms were there, pain in the testicles, and everything else, and so I proceeded to operate, but I could not find any stone; there wasn't any there. I followed it up; it was on the right side, until I came to a place where there was an enlargement, and on careful examination I finally found that that man had appendicitis. There had been an inflammation of the appendix, it had become adherent over the ureter and formed cicatricial tissue that had contracted, and with occasionally a spasmodic contraction, produced all the symptoms of stone in the kidney.

Sometime afterwards I had a case almost identically like it, but that time I was on the lookout; I was suspicious of it, and I found another case where the appendix had grown over and become adherent over the ureter. So it is something to bear in mind in stone in the kidneys, that sometimes we make mistakes. Sometime ago I had another case where I was sure I had a stone in the kidney. I had been written to by a doctor in Canada that a woman had stone in the kidney, and on investigation I thought she had stone in the kidney, but the radiograph did not show any; the woman was suffering a great deal and I made an exploratory operation, and what was worse in this case I could not find even the kidney. I cut down at the usual place and found upon going down further the rim of the pelvis, and what I found was a congenitally deformed kidney, a small irregular shaped body, and I removed it with a great deal of difficulty; the anatomical landmarks were gone. Somehow or other there was an accumulation of urine occasionally that produced the symptoms of nephritic colic. So the diagnosis is by no means easy, but still I think in these cases it is perfectly justifiable to do an exploratory operation, find whatever you can, and act accordingly. The diagnosis of kidney stone I think is difficult; we do not have very many cases in this country anyway, not so many as they have in England.

J. C. WILSON, FLINT.

I wish to say a word upon this subject, inasmuch as I have had some experience with patients who were not operated upon. I have two patients in mind, and one happens to be my wife, who have passed pus at intervals from the kidney for several years. We have demonstrated the source from whence the pus comes, by catheterizing the ureters. Eminent surgeons in Detroit and other cities whom I called in consultation advised the removal of the kidney or operation for drainage. My wife, who is a very nervous and delicate woman, was so frightened and depressed when informed that the surgeons deemed an operation necessary, that we feared a fatal result, if we attempted it at that time. She was then 60 years old. She has passed pus at intervals since first attack, four years ago, often in such large quantities that fully one-fourth to one-third of the volume of urine voided at times would be pus. I wish to say to you that medical treatment has kept her alive, and most of the time in tolerably good health. Several remedies that are reputed to be helpful in such cases we tried, without apparent benefit, such, for instance, as utropin and carbonate of guaiacol. The remedies from which we imagined we derived the greatest good were the peptonoids with creosote, pepto-mang, iron, quinine, salol. One thing in the treatment of which I have been careful has been to choose those remedies that did not disagree with the stomach and destroy the appetite. Have persisted in this course of treatment, omitting at intervals of weeks and sometimes months, all medication, and then again returning to them when symptoms warned us of a recurrence of the disease. At these intervals the urine would show no pus. We think possibly the irritating cause is the presence of stone in pelvis of kidney. Whatever it may be, slight indispositions of health, such as "taking cold," brings on an attack. Case No. 2 is almost identical in history, progress and treatment in a woman over 50 years old. It is five years since first attack. She enjoys fairly good health; attends to her household and social duties, and suffers little or no inconvenience or pain from the disease. The foregoing experiences, which I might enlarge upon, with others, convince me that many cases operated upon by the surgeon and pronounced incurable, except through agency of the knife, would recover with less danger to life, by proper medication and nursing.

A word as to difficulty in diagnosing stone in the bladder in some exceptional cases. I have in mind one such illustration that occurred in the early years of my practice, over a third of a century ago, that baffled some of the brightest experts in lithotomy in this country at that time. The patient was governor of Michigan, whose home was at Flint. When he came under my care he was unable to void his urine without the aid of a catheter. In those days we used silver catheters al-

together, and in the use of one of these, three or four times per day, I occasionally struck what I pronounced a stone. To verify my diagnosis I had my patient visit Detroit, and called on Dr. Moses Gunn, who had been my preceptor in college as professor of surgery in University of Michigan, who, after thorough examination and sounding of bladder, to my great surprise and mortification, decided against me, and said, "Doctor, there is no stone there." Not being satisfied, I afterwards, in the course of three or four months, called Drs. Zina Pitcher, Henry Lyster and Prof. A. B. Palmer at different times, all of whom examined the patient, got history of the case, sounded the bladder with steel sound, and gave as their opinion "there is no stone there." Still clinging to my own opinion that there was a stone there, I persuaded my patient to call Dr. Charles A. Pope, of St. Louis, Mo., who at that time had more lithotomy operations to his credit than any surgeon in America. One hundred and ten cases, if I remember correctly. He came to Flint; arrived in the evening, and sounded the bladder, but lo and behold! he said, *"There is no stone there."* He remained over night and made a second examination the following morning, with same result, *"no stone."*

Imagine my predicament. I had said there was a stone, but at the times they made their examinations, I had no more success in reaching or striking it than they. But still I adhered to the belief that it was present, but sacculated in such way that it could not always be found.

Soon after Dr. Pope's visit, in emptying the bladder by catheter, I obtained a few scales of phos. of lime. These I at once forwarded to Dr. Willard Parker, of New York City (Prof. of Surgery in College of Physicians and Surgeons), accompanied by a letter giving history of case. He replied: "I feel a delicacy in expressing an opinion in a case I have not seen and examined, especially since such eminent men as Drs. Chas. A. Pope, Moses Gunn, Zina Pitcher and others have given an opinion against you, but, judging from your letter and the specimen sent me, I must say I think there *is a stone there."*

We arranged to have him come to Flint and see the patient. He did so, and operated and removed a stone that weighed over two ounces, besides scooping and washing out a large quantity of scales that had been pocketed in the cul de sac, that concealed and held the stone. I relate this experience to illustrate the point, that it is not always wise, for experts in any department of medicine or surgery, to be too positive in their own opinion as to diagnosis and prognosis.

T. A. MCGRAW, DETROIT.

I have already had one say upon this subject. I am very much interested in the question of the pathology of tumors, which has been so ably presented; it is I think one of the things which has to be studied by careful examination in order for us to get at the real causal relations which produce tumor.

As regards tuberculosis of the kidney, which I was especially put down to discuss, the great point in all these cases of tuberculosis of the kidney is to diagnosticate them early, for this reason, that when a tuberculosis of the kidney occurs, it affects usually at first only one kidney, but afterwards involves the other kidney. That is a very peculiar thing when we come to think of it. Take, for instance, a geneal tuberculosis of the body, in tuberculosis of the lung we comparatively rarely find tuberculosis of the kidney as a secondary disease; I think that our experience will show that tuberculosis of the lungs is comparatively rarely associated with secondary tuberculosis of the kidneys, but a tuberculosis of one kidney sooner or later causes tuberculosis of the other kidney, and there comes in the question of how and why. If we say that in the tuberculosis of one kidney the bacilli is taken up into the blood and carried into the other, we have the problem before us, why in the other forms of tuberculosis it is not so carried?

So that in tuberculosis of the kidney we must assume one of two things—either that, as the disease goes on, the tuberculosis of the one kidney by nervous irritation causes a great tendency to tuberculosis of the other, or that both kidneys have some congenital malformation or weakness which predisposes them to the disease.

I believe the practical point is that we must learn to distinguish these cases early.

I have a young married lady under my charge who is suffering from a suppurating trouble of the kidneys, of both kidneys, I think—I examined the bladder carefully with a cystoscope and found around both ureters a field irritation. The rest of the bladder seemed to be sound. We have not been able to find any tubercular bacilli or calculi in the urine; the symptoms point to tuberculosis, but the microscope has not as yet confirmed it.

In those cases where both kidneys are affected Israel strongly advises not to operate. In some cases of operation it is not necessary to take out the whole kidney; Israel gives a striking example of that. The blood vessels of the kidney are so arranged that the upper and lower folds are absolutely separated one from the other; that is, they each have blood vessels running one to

the lower pole and one to the upper, and each with their own little series of capillaries and almost entirely distinct. Israel had a case where he found a shadowy mass in the upper pole of the kidney; he cut that pole out, and sewed some gauze with catgut on to the cut kidney, and left it, and the patient recovered and lived for some years. There is a case where you can resect one kidney and where you have positive reason for believing that the disease is limited to one pole or the other. Where one kidney is diseased and the tuberculosis has advanced there is only one thing to do; that is, take out the kidney; in the majority of cases, take out the whole kidney. I do not mean to say that the best thing in these cases is to limit our operation to one pole of the kidney, but I mean to say it can be done and done successfully if you are positive that the disease is limited to one pole, but in the majority of cases we have to take out, of course, the whole kidney.

W. H. HAUGHEY, BATTLE CREEK.

I feel thankful for the amount of discussion that has been aimed at my paper; I felt particularly gratified in hearing Dr. McGraw handle it as ably as he did in bringing out the point that I hinted at of a single infection, at least at first.

I wish to call attention to the fact that in my two cases the operation was done soon enough, at least so that the patients have recovered, and before the other kidney was involved.

It is unfortunate, but none the less true, that we are very seldom, or not always at least, favored with an opportunity of getting at these patients soon enough to make out the diagnosis early enough to operate. A person cannot get along without both kidneys very well, and an operation to remove both would be out of the question.

The catheterization of the ureters I have found somewhat difficult; by persistence, however, we can accomplish it in the female, nearly always, and it is a valuable measure in the diagnosis. In elderly patients, such as these reported by the last speaker, I hardly think I would recommend a very severe operation, or the removal of a kidney if the disease had gone on quite awhile, as it usually does, in these elderly people. They are timid about an operation, or they hold off until the thing has gone too far for operation. And where the trouble only torments, but is not dangerous to life, it would be manifestly wrong to operate.

The last case reported was one where the diagnosis of the doctor was right, and I congratulate him upon his diagnosis of stone and proving later on that he was correct.

The point I was in hopes would be discussed more in my paper was one that has received no attention whatever, and that is whether there is much liability of this infection spreading out and becoming general systemic tuberculosis through the ureter, if a portion of it is left. I myself think that the danger is absolutely nil, and from the fact that I cannot find that Dr. Kelly advocates the removal of a section of the bladder for that particular trouble any more, I believe that he must have abandoned it himself, and I hope he has.

The Clinton County Medical Society, recently organized, held a meeting on October 2nd at St. Johns, at which Dr. Angus McLean, Detroit, read a paper on "Surgical Treatment of the Biliary Passages."

THE JOURNAL records the program of the first meeting, since organization, of the Mecosta County Medical Society:

PROGRAM.

Demonstraction of the methods of using the X-Ray for Diagnostic and Therapeutic purposes; discussion of its effect in Carcinoma, and exhibition of patients.
W. T. DODGE, M. D., Big Rapids.

Discussion of the effects of the X-Ray in Tuberculosis and presentation of case.
L. S. GRISWOLD, M. D., Big Rapids.

Treatment of compound fractures of the leg with report of cases.
G. VAN AMBER BROWN, M. D.,
McBain, Mich.
Secretary of Missaukee County Medical Society.

Pelvic Abscess.
F. W. NOBLE, M. D., Remus.

The Microscopical Diagnosis of Tuberculosis with exhibition of slides under the microscope.
A. A. SPOOR, M. D., Big Rapids.

BOOKS RECEIVED.

General Paresis—Chase.

Transactions of the Missouri State Medical Society.

Medical communications of the Massachusetts State Medical Society.

The Journal of the Michigan State Medical Society

PUBLISHED MONTHLY

A. P. BIDDLE, M. D., Detroit.....Editor | S. EDWARD SANDERSON, M.D., Detroit, Bus. Mgr.

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DETROIT, OCTOBER, 1902

THE PRESENT STATUS OF MEDICAL REGISTRATION IN MICHIGAN.

Some three years have passed since the present medical act has become law, and the Medical Registration Board was appointed to administer it. To some few, no doubt, the act itself and its administration have been more or less of a disappointment, but to the greater number of those interested the medical act and its administration have been at least a qualified success. There is no question but that among the latter class is included those who comprehend and appreciate the difficulties and conditions the medical board has had to meet and to contend with, and these latter are, therefore, better qualified to give an intelligent and conservative estimate of the benefits accomplished by a medical act in which provision is made for its administration by a mixed board, whose membership is composed of adherents of the various schools of medicine recognized in this state.

To judge intelligently and fairly of the medical act and its administration, we must not lose sight of the conditions present in Michigan three years ago, about the date when the act came into operation.

For a period of sixteen years immediately prior to this date, Michigan had been legally infected with an act entitled, "An Act to Promote Public Health," passed by the Legislature of 1883, under

which holders of fraudulent diplomas, and unqualified and disreputable practitioners generally, were not only able to flourish, but under which they were able also to assume the qualifications of legal medical registration, and as a natural sequence were credited by a credulous public with a degree of reputability to which they were not entitled. In one county alone in this state over three hundred of these fraudulent registrations were made. So extremely farcical was the medical act of 1883, and the provision for its administration, that even the buying of a fraudulent diploma was an unnecessary expense, for scores of registrations, so-called, were made upon false affidavits, the affiants choosing the college most suited to their various tastes or environment as a basis for their illegal registration. As a natural outcome of this semi-legalized condition, diploma mills started up in neighboring states, and not only prospered, but also assumed the offensive in medical legislation.

Under the circumstances as noted above the framers of the present medical act had no easy problem to solve in attempting medical legislation, and it was necessary for them to take into consideration existing conditions, public policy and popular prejudice. Various interests as well as various schools of practice had to be harmonized. Opposition from within as well as from without the medical profession had to be met and pacified. The proposed act had to remedy the evil of former discredited medical legislation. The profession had for some thirty years been endeavoring to obtain fair and reasonable medical legislation from the state and had failed to obtain anything further than the discredited '83 act. On account of the conflicting interests involved and organized opposition, it was not possible to obtain at that time a perfect medical act, and the authors of the Chandler Medical Bill did not attempt the impossible, otherwise the '83 act would still have been in existence, and the notorious Armstrong schools would still be flourishing.

The medical act of 1899 has fulfilled exactly the expectations of its authors. It has rid the state and society of hundreds of fraudulent and incompetent practitioners, and has made the practice of the unqualified extremely precarious and unprofitable, at the best, wherever attempted. It has raised the standard of qualification for graduation at colleges not only in Michigan, but in other states its influence in this direction has been felt and favorably commented upon. In the matter of organization and records it has rendered order out of chaos. The inquiries and absolute exactness of records to meet possible legal suits in hundreds of rejections is a labor that can hardly be appreciated. In dozens of cases it was necessary to give weeks of labor to single cases. It has administered the act equitably in those cases of worthy and reputable practitioners who had bona-fide moral claims to consideration, and has knowingly done injustice to no one. In place of hundreds of unqualified, and in many instances fraudulent practitioners, coming into Michigan yearly and registering, no one at the present date receives a certificate entitling him to registration unless possessed of qualifications of unquestionable standard. The present medical act has fulfilled the conditions for which it was created, and has demonstrated to the legislature and the people its usefulness as a

legitimate and useful measure for the protection of the public; and finally it has withstood all attacks made against its constitutionality in the Supreme and other courts of this state.

The Chandler Medical Act covers about the same ground that the first medical acts did, among others, in the states of Illinois, Ohio, Wisconsin and Indiana. These states quoted have recently advanced to more perfect medical legislation, and the time has now come when Michigan should also advance. The history of medical legislation shows the utility of advancing slowly but surely, of establishing a moderate medical act and amending it from time to time until model legislation has been attained. In the meantime the people have not only been educated to the advantages of state regulation of the practice of medicine, but the profession has also been benefited by this policy of moderation and experience.

There is undoubtedly a strong and ever-growing opinion among the intelligent public and the profession at this time for a higher standard of medical qualification for license in this state, and recognizing this opinion it is the intention of the State Board of Registration in Medicine to ask for amendments to the present medical act at the coming meeting of the Legislature, having in view not only the elevation of the standard, but also the uniformity of the act in connection with the medical acts of some of the better states. The State Medical Society passed upon these proposed amendments (see report of Committee on Legislation, page 84) at its Port Huron meeting in June last. If each county medical society throughout the state would also endorse and recommend these proposed amendments, the task of passing them through the Legislature would be comparatively easy.

THE REORGANIZATION OF THE AMERICAN MEDICAL ASSOCIATION AND RECIPROCITY FOR THE LICENSE TO PRACTICE MEDICINE.

After Dr. Wyeth, President of the American Medical Association for the year 1901-02, declared at Saratoga that inter-state comity for the license to practice medicine was second in importance only to the reorganization of the American Medical Association, we may well point out in what way inter-state reciprocity for the license to practice medicine may be helped along by the reorganization of the American Medical Association. The vital connection between the two movements and its mutual helpfulness can be understood with little difficulty. In order to attain anything of importance for the welfare of the public and the profession, it must be reached by organized efforts. The reorganization of the American Medical Association means in reality an organization of the medical profession of the country. It is only natural that an organization of physicians will first of all consider the condition on which the very existence of a medical profession is based. The physician's life-purpose is to practice medicine. In order to practice medicine he must have patients. The American physician should have the possibility to respond to his duty in any part of his country. That this should be the case is a trite remark. Unfortunately, however, it is not the case. One

state excludes practitioners of other states sometimes without any reason whatever. The organized profession of the country can easily exert its combined influence with a decidedly certain outlook of success towards the establishment of sound conditions. These will exist:

First: When unjustified discrimination against well-qualified practitioners is done away with.

Second. When conditions, which justify discrimination against a state, are changed in this state.

That county, state and national organizations must work together for this purpose is apparent; that they will work together should not be doubted.

EMIL AMBERG.

RECIPROCITY AMONG THE SEVERAL STATE MEDICAL SOCIETIES.

When a Presbyterian moves from Pennsylvania to Michigan he does not lose his membership in the Presbyterian Church. A certificate of good standing by his old is presented to the new church, and special membership is uninterrupted. The same method prevails in many fraternal orders and in all churches. Removal from one state to another calls for no resignation from the one state and election by the other. Why should a different custom prevail among the several State Medical Societies?

From 1819 to 1851 Michigan dismissed its members to other State Medical Societies by a certificate of good standing, and accepted those bringing similar certificates from other State Societies. On entering upon the second stage of its evolution this custom was discontinued and has not been resumed. On entering upon the fourth stage of evolution it has placed in its organic law a provision by which it offers to establish such reciprocity with any State Medical Society having equivalent standards of membership. Its officers are directed to communicate this offer to such societies, and we may confidently hope the custom may finally include the entire United States.

It should be the custom that once a member of a State Medical Society always a member, no matter how many changes in state residence are made—so long as the individual meets his obligations.

The value of such reciprocity to professional organization is self-evident. A bank note passing current in Michigan is good, but one current in each of the other states is better. So membership in the Michigan State Medical Society is good, but if this carried a practical membership in every other State Society it would have its value enhanced.

At this time when states are seeking to render membership more attractive this element is worthy of serious consideration. Which states will be the first to grasp this hand of broader fellowship extended by the Michigan State Medical Society?

ON THE ETIOLOGY OF TUBERCULOSIS.

That the etiology of tuberculosis is to be sought for elsewhere than in the biology of the tubercle bacillus alone is becoming more and more a scientific conviction.

For nearly twenty years the best efforts of many of the best minds of the

laboratory world have been directed toward the isolation of a "specific" from culture products; and the result, while of infinite value in one way and another to our knowledge of the subject, has been, we must admit, a failure.

Consumption means more than the development and growth of a micro-organism in the body. Apparently there is a "pretuberculous" and fundamental error in metabolism, which, so far at least, has eluded search, and still remains the terra incognita of the scientific "path finder."

It is hard to abandon idols, and at the end of such a long and diligent, though fruitless, search after anti-toxins and immunizing sera, it is not a little humiliating to be forced to acknowledge defeat and to confess that in the care of phthisis we are scarcely advanced beyond where Hippocrates left us.

To be sure, we still believe, and with good reason, that the tubercle bacillus is *one* of the essential factors without which the clinical picture of phthisis is impossible. What we have learned is that it is not the *only* essential, and that the most difficult problem in the etiology of consumption is yet to be solved. There is no doubt that this problem will be manfully grappled, and in the end successfully solved, perhaps suddenly, like the tremendous discovery which Koch made; more likely, however, by the slow, laborious process of piecing together the fragmentary observations of studious minds in all parts of the world. There is, after all, something of keen enjoyment in the thought that the privilege of this and numerous other great discoveries, vital to the welfare of the race, is shared by even the most humble and obscure, as well as the great and renowned, in the medical profession. The thought should be a stimulus to careful, honest and intelligent observation. In the routine clinical practice no less than in the completely equipped laboratory, men should "read, mark, learn and inwardly digest" what is before them, each gathering data of information from the resourceful school of experience, and each should be not only willing but zealous to add his knowledge thus gained, however insignificant he may deem it, to the general fund, for to this general fund in all human probability we must look for the means of solving the still obscure problem of the etiology of tuberculosis, than which no more important subject is before the world.

HERBERT M. KING.

THERAPEUTICS OF THE X-RAYS.

At this time so much is being said and written regarding the application of the Roentgen rays in the treatment of disease, such as the various forms of malignant tumors and a great variety of the chronic and intractable cutaneous lesions, it might be of advantage to review the work that has been done and to see if the facts bear out the optimistic opinions we have heard on all sides. That it is of great value we think no one will deny, but that it is a universal cure for all forms of malignant disease is a mistake that should be corrected. That it will relieve the pain in almost all cases is a great boon to the sufferer, and, if it did nothing more, it would still be a source of great satisfaction to the patient, as well as to the physician. In many cases it seems to hold the disease in check, while in many others a permanent cure seems to be effected. Of course it is ridiculous to expect a cure of an advanced case of osteo-

sarcoma, and in fact in all of the sarcomas it is likely to prove satisfactory only so far as to give temporary relief. On the other hand, with the carcinoma and epithelioma, when taken before the case has advanced too far and given careful treatment, there will result a fair percentage of cures.

Better results will be attained in the treatment of the chronic diseases of the skin. In lupus, psoriasis, acne, and many of the chronic eczemas the result is satisfactory, a large percentage of the cases making an apparently complete recovery.

Of course it will be some time before we shall be able to state with a definite certainty that cures are permanent. The whole treatment is as yet in the experimental stage, and time alone will prove their permanency. We believe that careful work along these lines will result in a larger percentage of cures than have been attained by other therapeutic means, and will prove an inestimable boon to many sufferers.

In order to give satisfactory treatment a physician should make a study of electro-therapeutics. Simply because he has an apparatus and can light a Crook's tube is no indication that he can treat the cases satisfactorily. Everything else being equal, the physician best equipped in the knowledge of electro-therapeutics will undoubtedly attain the best results.

P. M. CAMPBELL, Detroit.

The first meeting of the Wayne County Branch of the Michigan State Medical Society, viz., of the Wayne County Medical Society, took place at the Hotel Normandie on September 4, 1902, and was well attended. The paper of the evening was read by Dr. Emil Amberg, of Detroit. Subject, "The Surgical Anatomy of the Middle Ear a Factor in Favor of Early Interference in Suppurative Affections of the Same," with demonstrations. The essayist presented a number of specimens, etc., illustrating the topic under discussion."

Reports of Committees

REPORT OF COMMITTEE ON LEGISLATION, MICHIGAN STATE MEDICAL SOCIETY, AT THE ANNUAL MEETING, PORT HURON, JUNE 27, 1902.

Since the report which was tabled at last year's meeting was brought before the Society some changes have been thought necessary. Therefore the committee submits the following suggestions in the matter of amendments to the present medical act, which covers and adds to the report of 1901.

(1) That section 1 be amended by substituting for the physio-medical member on the board an additional homœopathic member, making the school composition of the board as follows: Regulars, 5; Homœopaths, 3; Eclectics, 2; total, 10. As the physio-medical school is represented in Michigan by less than twenty registered practitioners, the necessity for representation on the board of this school does not exist. The homœopaths have not asked for additinal representation on the board, and have lived up to the letter and spirit of the agreement made with the committee in 1899, but as they number in registered physicians three times the combined strength of the eclectics and physio-medics in this state, it is only fair that they should have an additional board member.

(2) That section 3, subdivision 3, be amended by requiring all candidates for examination before the board to be graduates in good standing of legally authorized and reputable medical colleges, approved and listed by the medical board, having a course of not less than four years of six months each, no two courses to be taken in the same year. And also that the candidate, in addition to the above medical qualifications, present evidence to the board of graduation from an approved high school, academy, college or university, previous to the attendance in such listed and approved medical colleges. Graduates in Arts, Science, Philosophy, Dentistry and Pharmacy of approved colleges may, however, be credited with one full course of study by approved colleges provided they show attendance in their combined courses in accordance with the schedule of Minimum Requirements of Medical Education hereafter quoted.

MINIMUM STANDARD OF EDUCATION

Required under Reciprocity Qualification No. 1.

LECTURES AND TEACHING.

30 hours in Electro-Therapeutics.

160 hours in Physiology.

100 hours in Pathology.
80 hours in Histology.
200 hours in Practice of Medicine.
100 hours in Obstetrics.
60 hours in Bacteriology.
15 hours in Medical Jurisprudence.
160 hours in Anatomy.
160 hours in Chemistry and Toxicology.
130 hours in Therapeutics.
30 hours in Hygiene.
200 hours in Surgery.
30 hours of Gynecology.
48 hours in Diseases of the Eye and Ear.
100 hours in Pharmacology.

LABORATORY WORK AND DEMONSTRATIONS.

240 hours in Anatomy.
120 hours in Pathology.
100 hours in Histology.
120 hours in Bacteriology.
36 hours in Obstetrics.
60 hours in Eye and Ear.
180 hours in Physiology.
180 hours in Chemistry and Toxicology.
200 hours in Surgery.
120 hours in Practice.
32 hours in Dermatology.
120 hours in Gynecology.

MINIMUM STANDARD OF PRELIMINARY EDUCATION

Required under Reciprocity Qualification No. 1.

A certificate of graduation from an approved and reputable high school, academy, college, or university with the following minimum requirements:

GROUP I.—ENGLISH LANGUAGE.

(a) English Grammar.
(b) Rhetoric and Composition.

GROUP II.—HISTORY.

(a) History of the United States, as presented in McLaughlin's History of the American Nation, Johnston's History of the United States, or equivalent text.

(b) General History, as presented in Myer's General History, or equivalent text. Greek and Roman History or English History will be accepted as a substitute for General History.

GROUP III.—MATHEMATICS.

(a) Algebra—Fundamental rules, Fractions, Simple Equations, Involution and Evolution, the Calculus of Radicals and Quadratic Equations, as given in Onley's Complete School Algebra, or Beman and Smith's Elements of Algebra, or some equivalent text.

(b) Geometry—Plane Geometry as given in Beman and Smith's Plane and Solid Geometry, or equivalent text.

(c) Plane Trigonometry, as given in Wentworth's Trigonometry, or equivalent text.

GROUP IV.—NATURAL SCIENCES.

(a) Physics, as presented in Carhart and Chute's Elements of Physics, or an equivalent text.

(b) General Biology, or Botany and Zoology, as presented in Sedwick and Wilson's General Biology, or Spaulding's Introduction to Botany and Kingsley's Comparative Zoology. These courses will be accepted only when accompanied by laboratory work.

(c) Chemistry, as presented in Freer's Elementary Chemistry, or an equivalent amount of work in Remsen's Introduction to the Study of Chemistry.

That a committee be appointed by the president to review the above suggested standard of medical and preliminary education who shall report at this meeting, and the committee would suggest the following as members of such committee: A. W. Alvord, Battle Creek; H. B. Landon, Bay City; V. C. Vaughan, Ann Arbor; H. O. Walker, Detroit; Wm. Fuller, Grand Rapids; Hal C. Wyman, Detroit; D. B. Cornell, Saginaw.

(3) That, under section 3, subdivision 4 of the reciprocity clause of the medical act, Qualifications No. 1 and No. 2, adopted by the American Confederation of Reciprocating Examining and Licensing Medical Boards, be adopted. *Provided*, That the regulations governing the exchange of certificates under Qualification No. 1 shall be in harmony with the minimum requirements for preliminary and medical education itemized above.

QUALIFICATION NO. 1.

That a license or certificate of qualification of at least one year's date, based upon presentation of a satisfactory diploma, and an examination before a state board in specified branches of medicine and surgery, may be accepted at the discretion of a board in lieu of an examination, and as a basis upon which the license of a state may be issued.

QUALIFICATION NO. 2.

That a license or certificate of qualification issued by a State Board of Registration or Medical Examiners of at least one year's date, based upon presentation of a satisfactory diploma, and the recommendation of a State Board of Registration or Medical Examiners as to the reputability of the applicant, may be accepted at the discretion of a board in lieu of an examination and as a basis upon which the license of a state may be issued.

(4) That section 3, subdivision 5, or registration by "approved college" be struck out.

(5) That a section shall be added giving the board authority to cancel certificates obtained through fraud, and also the cancellation of certificates, in consequence of dishonest, immoral or unethical conduct.

B. D. HARISON,
Chairman.

(NOTE.—The committee, consisting of Drs. Alvord, Landon, Vaughan, H. O. Walker, Fuller, Wyman and Cornell, reviewed and approved the above quoted minimum standard of medical and preliminary education.—EDITOR.)

MICHIGAN STATE BOARD OF REGISTRATION IN MEDICINE.

Report of Secretary, for eight months, from October 1, 1901, to June 1, 1902.

STATEMENT OF RECEIPTS.

October 1, 1901, to May 31, 1902, inclusive.

To balance Oct. 1, 1901		$2,256 59
To fees received Approved College, Sec. 3, Sub. 5, 254	$2,538 00	
To fees received Examination, Sec. 3, Sub. 3, 23	230 00	
To fees received Re-registration, Sec. 3, Sub. 1, 9	9 00	
To fees received Lithographed Certificates, 223	223 00	
To fees received Duplicate Certificates, 3	3 00	
	3,003 00	
		$5,259 59

STATEMENT OF DISBURSEMENTS.

October 1, 1901, to May 31, 1902, inclusive.

By printing and stationery	$611 78	
By postage	100 00	
By rent	93 75	
By light	12 75	
By porter	7 50	
By charwoman	15 00	
By clerk hire, committee.	9 10	
By attendant at examination	4 00	
By express	15 96	
By P. O. box	2 00	
By office supplies and fixtures	11 62	
By salary of secretary	800 00	
By clerk hire, office	422 39	
By incidentals	2 00	
	$2,107 85	
By Expenses of members	308 45	
	$2,416 30	
		$2,843 29
By returned fees		63 00
Balance		$2,780 29

RECAPITULATION.

To receipts Oct. 1, 1901, to June 1, 1902		$3,003 00
To disbursements, Oct. 1, 1901, to June 1, 1902	$2,416 30	
To returned fees, Oct. 1, 1901, to June 1, 1902	63 00	
	2,479 30	
June 1, 1902, balance	$ 523 70	
Oct. 1, 1901, balance	2,256 59	
Total balance June 1, 1902		$2,780 29

I would refer you to page 14 of the Official List, under the heading Estimated Expenses 1901-1902, and would call your attention to the fact that the disbursements during the past eight months are well within the estimated expenses, and that the receipts are also up to the anticipated income of the board. Owing to the changes of membership on the board, and also the necessity of publishing an official list of certificate holders, the item of printing and stationery amounts to nearly four hundred dollars more than it ordinarily would have done provided these extra items had not been necessary.

REGISTRATIONS FROM APPROVED COLLEGES.

	No.
University of Michigan, Ann Arbor, Mich.	37
University of Michigan (Homœo.), Ann Arbor Mich.	2
Detroit College of Medicine, Detroit, Mich.	54
Rush Medical College, Chicago, Ill.	11
Michigan College of Medicine and Surgery, Detroit, Mich.	14
University of New York and Bellevue Hospital, New York, N. Y.	5
Cleveland Homœopathic Medical College, Cleveland, O.	2
Jefferson Medical College, Philadelphia, Pa.	4
University of Pennsylvania, Philadelphia, Pa.	3
The Bennett College of Eclectic Medicine and Surgery, Chicago, Ill.	6
Hahneman Medical College and Hospital, Chicago, Ill.	16
Medical Dept. Buffalo University, Buffalo, N. Y.	4
Vanderbilt University, Nashville, Tenn.	1
The Eclectic Medical College of the City of New York, New York, N. Y.	1
College of Physicians and Surgeons, Chicago, Ill.	11

Eclectic Medical Institute, Cincinnati, O.	4
New York Homœopathic Medical College and Hospital, New York, N. Y.	1
Detroit Homœopathic Medical College, Detroit, Mich.	5
Cleveland Homœopathic Medical College, Cleveland, O.	1
Harvard University, Medical School, Boston, Mass.	2
Cornell University, Medical Dept., New York, N. Y.	1
Northwestern University Medical School, Chicago, Ill.	1
Chicago Homœopathic Medical College, Chicago, Ill.	3
American Missionary College, Battle Creek, Mich.	3
Grand Rapids Medical College, Grand Rapids, Mich.	15
Saginaw Valley Medical College, Saginaw, Mich.	40
Illinois Medical College, Chicago, Ill.	1
	248
Fees returned to	5
Incomplete	1
Total	254

B. D. HARISON,
Secretary.

A meeting of the representatives of the Illinois, Wisconsin, Indiana and Michigan State Boards was held in Chicago, January 19th last, and the Confederation of Members of Reciprocating State Medical Examining and Licensing Boards was founded. At an adjourned meeting of the Confederation held in Chicago, May 20th last, the name of the Confederation was changed to the American Confederation of Reciprocating, Examining and Licensing Medical Boards.

The Confederation adopted a Constitution, of which the object is to establish reciprocal relations between the medical examining and licensing boards of the states, territories, districts and provinces of the United States; the purpose of which being that thoroughly worthy and well qualified physicians and surgeons who have been legally authorized to practice under the laws of one of said states, territories, districts or provinces, may be given authority and admitted to practice in any state, territory, district or province represented in this Confederation without a repetition of the tests of qualification to which such practitioner has submitted.

The Confederation also adopted the two following qualifications as a basis for the exchange of state certificates by boards who hold membership in the Confederation:

1. That a license or certificate of qualification of at least one year's date and based upon presentation of a satisfactory diploma, and an examination before a board in specified branches of medicine and surgery, may be accepted at the discretion of a board in lieu of an examination, and as a basis upon which the license of a state may be issued.

2. That a license or certificate of qualification issued by a State Board of Registration or Medical Examiners of at least one year's date, based upon presentation of a satisfactory diploma, and upon the recommendation of a State Board of Registration or Medical Examiners as to reputability of the applicant, may be accepted at the discretion of a board in lieu of an examination, and as a basis upon which the license of a state may be issued.

The Wisconsin and Indiana Boards expressed their desire to reciprocate fully with the Michigan Board, and with each other, under the terms of the above qualifications, and in order to make such reciprocity effective it will be necessary for the board to pass a resolution instructing its executive officers in the matter, and also to adopt forms in connection with such exchange of state certificates under both of the above quoted qualifications.

Owing to the fact that Illinois, Ohio, and several other states reciprocity laws provide for the recognition of certificates obtained only through examination before a state board, it is only possible for Michigan to exchange certificates under qualification No. 1 of the Confederation with such states. Resolutions covering such form of exchange of certificates should be adopted by this board, and forms in connection therewith.

Dr. Harison then calls attention to the almost unanimous opinion among those interested in the subject to the necessity and advisability of amending the present medical act at the next session of the legislature. The amendments contemplated and suggested would bring the act up to the standard adopted by some of the best states, such as New York and Ohio. Section 3, Subdivision 5, or the 'approved college" section would be eliminated, and Section 3, Subdivision 3 would be amended by requiring all applicants for examination to be graduates of approved colleges, and a standard of preliminary education equal to that demanded by Ohio would be required.

Also a section should be added giving the board authority to cancel certificates obtained through fraud, and in consequence of immoral, dishonest, or unethical conduct.

REPORT OF THE COMMITTEE ON NATIONAL LEGISLATION, MICHIGAN STATE MEDICAL SOCIETY, AT ANNUAL MEETING, PORT HURON, JUNE 27, 1902.

For the second time the Michigan State Medical Society was represented at the conference of the Committee on National Legislation of the American Medical Association and Affiliated Societies, which took place in April, at Washington, D. C.

Many measures pending received the attention of the conference. I may be permitted to make special reference to a subject which was brought up by your delegate at the second meeting of the conference, in 1901, and which received thorough consideration at the third annual conference this year, viz.: the subject of interstate reciprocity for the license to practice medicine. As you know, considerable attention was paid to the subject at the meeting of the American Medical Association at Saratoga a few weeks ago. Dr. John Allan Wyeth said, in his presidential address: "Scarcely second in importance to a uniform scheme of reorganization is that of a uniform standard of requirements for the practice of medicine in the various states. It is of vital interest to the welfare of the profession that the question of reciprocity or interstate comity should be settled, so that without any sacrifice of the very highest requirements, a physician in practice in one state, having gone before a competent board, upon change of residence might be permitted to practice without being subjected to a second state examination, in the place of his adoption. The House of Delegates will, without doubt, act upon this matter in this session."

I may say that the House of Delegates appointed a Committee on Reciprocity consisting of five members. The renewed interest in the question of reciprocity is directly traceable to the efforts of your delegate before and after he was appointed. This interest has manifested itself not only in the American Medical Association, but also in other National, State and local societies. The medical literature of recent years, and especially of recent months, shows that the movement toward Interstate Reciprocity is growing and it has already borne good fruits.

The work of the Conference is in the interest of professional and public welfare, and it would be entirely in order for the Michigan State Medical Society, in my opinion, to pay the expenses of the delegate to Washington.

If I understand the proceedings of the House of Delegates at Saratoga correctly (see Journal of the American Medical Association, June 21st, page 165), the following was adopted, * * * and an auxiliary committee to be composed of one member from each state and territorial society represented in this Association, to be appointed annually by the President of this Association upon the nomination of such state or territorial society, etc."

In conclusion, your committee recommends (1) that the Committee be continued and that the Michigan State Medical Society nominate such a committee of one and an alternate. (2) That the actual expenses of the delegate for the next meeting be borne by the society, the appropriated sum not to exceed $60.

EMIL AMBERG,
Committee.

Obituary

It is with sorrow and with appreciation of the **great loss to the medical profession of the state,** that The Journal announces the death of Dr. Jerome M. Snook, of Kalamazoo, on July 8th, 1902. He was respected and honored by his fellow-men and esteemed by his professional brethren; his death will be **keenly felt.**

Dr. Snook's early life was passed in the east. In 1865 he came to Michigan and became a student at Kalamazoo College, where he was enrolled for three years, after which, for several years, he engaged in business life. During this time his medical studies began and in 1870 he became a pupil of Dr. H. O. Hitchcock; he later entered the medical department of the University of Michigan. After completing his work there he came back to Kalamazoo and almost continuously until the day of his death, practiced his profession in that city. His unceasing labors brought him into prominence both locally and throughout the state. In 1877 he was health officer of Kalamazoo; in 1889 was president of the Kalamazoo Academy of Medicine. During the past few years, Dr. Snook, realizing that his strenuous life was making inroads upon his health and vigor, retreated somewhat from his active duties, though almost until the day of his death his professional work occupied his time and attention.

Dr. Snook was a conspicuous example of the professional and financial success which comes to a life devoted strictly to its own duties. He was faithful and industrious to the end and with him it had been quietly and unostentatiously a governing rule to attend strictly and fathfully to his own business.

He was a good citzen and will be much mssed, especially by his patients, to whom he greatly endeared himself.

CONSTITUTION AND BY-LAWS

OF THE

MICHIGAN STATE MEDICAL SOCIETY

ADOPTED AT PORT HURON, JUNE 26, 1902.

CONSTITUTION.

ARTICLE I.—NAME OF THE SOCIETY.

The name and title of this organization shall be the Michigan State Medical Society.

ARTICLE II.—PURPOSES OF THE SOCIETY.

The purpose of this Society shall be to federate and to bring into one compact organization the entire medical profession of the State of Michigan and to unite with similar Societies in other States to form the American Medical Association; with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component Societies shall consist of those County Medical Societies which hold charters from this Society.

ARTICLE IV.—COMPOSITION OF THE SOCIETY.

SECTION 1. This Society shall consist of Members, Delegates and Honorary Members.

SEC. 2. *Members.* The Members of this Society shall be the members of the Component County Medical Societies.

SEC. 3. *Delegates.* The Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective Component County Societies in the House of Delegates of this Society.

SEC. 4. *Honorary Members.* Honorary members shall be of two classes, resident and non-resident.

SEC. 5. Resident Honorary Members shall be chosen from those who have practiced medicine not less than *thirty* years and have been active members in good standing of this Society for at least *ten* years. They shall be nominated by the Council at any of its meetings and may be elected by the House of Delegates at the Annual Meeting following such nomination. They shall have all the privileges of the Society and receive all publications without the payment of dues. Not more than five Resident Honorary Members shall be elected at any one meeting.

SEC. 6. Any distinguished physician, not a resident of this State, may be elected an Honorary Member, provided he has been nominated by the Council at a previous meeting. Not more than two non-resident Honorary Members shall be elected at any one meeting.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Society, and shall consist of (1) delegates elected by the Component County Societies, and (2) *ex-officio,* the officers of the Society as defined in this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Society into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of the Component County Societies.

ARTICLE VII.—SESSIONS AND MEETINGS.

SECTION 1. The Society shall hold an Annual Session during which there shall be held daily General Meetings, which shall be open to all registered members and delegates.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS.

SECTION 1. The officers of this Society shall be a President, four Vice-Presidents, a Secretary, a Treasurer, and twelve Councilors.

SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary and the Treasurer shall be elected by the Council at its Annual Meeting in January, and each shall hold his office for one year. The Councilors shall be elected for terms of six years each, being so divided that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

SEC. 3. The officers of this Society, not otherwise elected, shall be elected by the House of Delegates on the morning of the last day of the Annual Session; but no Delegate shall be eligible to any office named in the first section, except that of President or Councilor; and no person shall be elected to any such office who has not been a member of this Society for at least two years.

ARTICLE IX.—FUNDS AND EXPENSES.

SECTION 1. Funds for meeting the expenses of the Society shall be provided by a yearly fee of two dollars for each member, payable in advance to the Secretary of this Society by the Secretary of his Component County Society, and from the profits of its publications.

SEC. 2. Funds may be appropriated by the House of Delegates, subject to an approval by the Council, to defray the expenses of the Annual Sessions, for publication, and for such other purposes as will promote the welfare of the Society and the profession.

ARTICLE X.—RECIPROCITY OF MEMBERSHIP AMONG STATE SOCIETIES.

To broaden professional fellowship among the State Societies, the Michigan State Medical Society, by its President and Secretary, is ready to arrange with other State Medical Societies, having equal requirements, for the interchange of certificates of membership. Members removing from one of these States to another may thus avoid the formalities of re-election.

ARTICLE XI.—REFERENDUM.

The General Meeting of the Society may by a two-thirds vote order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the members of the Society for a final vote; and, if the persons voting shall comprise a majority of all the members registered at the session, a majority of such vote shall determine the question, and be binding upon the House of Delegates.

ARTICLE XII.—THE SEAL.

The Society shall have a common Seal, with power to break, to change or to renew the same at pleasure.

ARTICLE XIII.—AMENDMENTS.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each Component County Society at least four months before the session at which final action is taken.

BY-LAWS.

CHAPTER I.—MEMBERSHIP.

SECTION 1. All members of the Component County Societies, who are not in arrears for dues, shall be privileged to attend all meetings and to take part in all of the proceedings of the Annual Sessions, and shall be eligible to any office within the gift of the Society, except as otherwise provided. See Constitution, Art. VIII., Sec. 3.

SEC. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered County Society shall be prima facie evidence of his right to register at the Annual Session in the respective bodies of this Society.

SEC. 3. No person who is under sentence of suspension or expulsion from any Component Society of this Society, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Society; nor shall he be permitted to take part in any of its proceedings until such time as he has been relieved of such disability.

SEC. 4. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the Component Society of which he is a member. When his right to membership has been verified by reference to the roster of his Society he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that Session. No member nor delegate shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section.

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE SOCIETY.

SECTION 1. The Society shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session.

SEC. 2. Special sessions of either the Society or the House of Delegates may be called by the President at his discretion or upon petition of twenty delegates.

CHAPTER III.—GENERAL MEETINGS.

SECTION 1. The General Meetings shall include all registered members and delegates, who shall have equal rights to participate in the proceedings and discussions, and to vote on pending questions. Each General Meeting shall be presided over by the President, or in his absence or disability, or by his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President and the annual orations, and the entire time of the Session, so far as may be, shall be devoted to papers and discussions relating to scientific medicine.

SEC. 2. The General Meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and to dispose of reports of the same; but any expense in connection therewith must first be concurred in by the Council.

SEC. 3. Except by special vote the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

SEC. 4. No address nor paper before the Society, except those of the President and orators, shall occupy more than fifteen minutes in its delivery; and no member shall speak longer than five minutes, or more than once on any subject.

SEC. 5. All papers read before the Society shall be its property. Each paper read shall be deposited immediately with the Secretary, but the author may also publish the same in any reputable journal not published in this State, provided the printed article bears the statement that it was "read before the Michigan State Medical Society."

CHAPTER IV.—HOUSE OF DELEGATES.

SECTION 1. Each Component County Society shall be entitled to send to the House of Delegates each year one delegate for every 50 members, and one for each major fraction thereof; but each County Society holding a charter from this Society, which has made its annual report as provided in this Constitution and By-Laws, shall be entitled to one delegate.

SEC. 2. The House of Delegates shall meet annually at the time and place of the Annual Session of the Society, and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Society, or with the meeting held for the address of the President and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But, if the business interests of the Society and profession require, it may meet in advance, or remain in session after the final adjournment of the General Meeting.

SEC. 3. A majority of the registered delegates shall constitute a quorum. All of the meetings of the House of Delegates shall be open to members of the Society.

SEC. 4. It shall consider and advise as to the interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and to enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

SEC. 5. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body in such a manner that at least one of the delegates shall be elected each year.

SEC. 6. It shall divide the counties of the State into twelve Councilor Districts, corresponding to the twelve congressional districts according to the present apportionment, except that no county shall be sub-divided. When the best interest of the Society and the profession will be promoted thereby, it may organize in each a District Medical Society to meet midway between the Annual Sessions of this Society. Members of the chartered County Societies, and no others, shall be members in such District Societies.

SEC. 7. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates, and such committees may report to the House of Delegates in person, and may participate in the debate thereon.

SEC. 8. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

SEC. 9. It shall present a summary of its proceedings to the last General Meeting of each Annual Session, and shall publish the same in the Journal of the Society.

SEC. 10. The House of Delegates shall provide for the division of the scientific work of the Society into appropriate Sections:

First—A Section on General Medicine.

Second—A Section on Surgery, Ophthalmology and Otology.

Third—A Section on Obstetrics and Gynecology.

CHAPTER V.—SECTIONS

SECTION 1. Sections shall hold their meetings at such times and in such places as shall not interfere with the General Meetings.

At each Annual Meeting a Chairman shall be chosen for each Section, to serve for one year. A Secretary shall be chosen every second year to serve for two years or till his successor is elected.

All papers, communications and matters of technical or professional nature shall be referred to the Section to which they pertain.

SEC. 2. Each Section shall annually choose a person whose duty it shall be to deliver an address before the next Annual General Session upon some subject pertaining to the department from which he is chosen.

CHAPTER VI.—ELECTION OF OFFICERS.

SECTION 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect, unless otherwise provided.

SEC. 2. The President shall annually appoint a Nominating Committee of five from the House of Delegates, no two of whom shall be from the same Councilor District.

SEC. 3. The Nominating Committee shall nominate the first, second, third and fourth Vice-Presidents, the Councilors from the Districts in which there are vacancies, and the Representatives to the House of Delegates of the American Medical Association. In so far as possible, the Vice-Presidents shall be selected with especial reference to the promotion of the work of the Councilors in the three Districts nearest their respective residences.

SEC. 4. The report of the Nominating Committee and the election of the officers nominated shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the Session.

SEC. 5. Nothing in this article shall be construed to prevent additional nominations being made by members of the House of Delegates.

SEC. 6. Any member of the Society is eligible to the office of President, and nominations to this office may be made and seconded by any member of the same.

SEC. 7. The nominations for **President** shall be made the first order of miscellaneous business at the **General Meeting of the Society** on the first day of the Annual Session. Under no other circumstances shall a nomination or announcement of candidates be made in open session.

SEC. 8. A locked ballot box, for the reception of ballots, in the custody of the Committee on Nominations above mentioned, shall be placed in or about the hall where the General Meetings are held. One or more of the Committee on Nominations shall receive and deposit the ballots in the box, at the same time checking the name of the voter from the list of those entitled to vote, which list shall include all the members of the Society registered at the meeting.

SEC. 9. The polls shall close at 12 o'clock, noon, on the last day of the Session. The result of the canvass shall be reported to the Society at the close of the General Meeting.

SEC. 10. The person receiving the largest number of votes on the presidential ticket shall be declared President.

SEC. 11. In the event of a tie vote on the presidential office the presiding officer shall submit the names of the candidates in alphabetical order to the viva voce vote of the meeting, and the one receiving the greatest number of votes shall be declared President.

SEC. 12. The Secretary and the Treasurer shall be elected by the Council at its meeting in January, as provided.

CHAPTER VII.—DUTIES OF OFFICERS.

SECTION 1. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall, as far as practicable, visit by appointment the various sections of the State and assist the Councilors in building up the County Societies, and in making their work more practical and useful.

SEC. 2. The Vice-Presidents shall assist the President in the discharge of his duties, and the Council in the organization and nurture of County Societies.

SEC. 3. The Treasurer shall give bond for the trust reposed in him, as fixed by the Council. He shall demand and receive all funds due the Society, together with bequests and donations. He shall, under the direction of the Council, sell or lease any estate belonging to the Society, and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Society. He shall pay money out of the Treasury only on the written order of the Chairman of the Council, countersigned by the Secretary of the Society; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands to the Council.

SEC. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and atend all meetings of the Society and of the House of Delegates, keeping minutes of their respective proceedings in separate

record books. He shall be custodian of all record books and papers belonging to the Society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the County Societies, and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall be Editor of the Journal of this Society, and shall employ such assistants as may be ordered by the Council. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the Council.

SEC. 5. The business of each Annual Session shall be completed by the officers who have served throughout the Session.

CHAPTER VIII.—COUNCIL.

SECTION 1. The Council shall hold daily meetings during the Annual Session of the Society and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. Three Councilors shall constitute a quorum for the transaction of business. The Council shall meet on the last day of the Annual Session of the Society for reorganization and for the outlining of the work for the ensuing year. At this meeting it shall elect a Chairman and a Secretary.

It shall hold a meeting in January of each year at a date and place fixed by the Chairman. It shall keep a permanent record of its proceedings, and through its Chairman make an annual report to the House of Delegates at such time as may be provided.

SEC. 2. Collectively the Council shall be the Board of Censors of the Society. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the Component Societies, or to this Society. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a County Society, upon which an appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final.

SEC. 3. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such County Societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts until every reputable physician of the State has been brought under medical society influence.

SEC. 4. It shall upon application provide and issue charters to County Societies organized to conform to the spirit of this Constitution and By-Laws.

SEC. 5. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies, to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies. These societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for County Societies, until such counties may be organized separately.

SEC. 6. The Council shall provide and superintend the publication and distribution of all proceedings, transactions and memoirs of the Society, and shall have authority to appoint an editor and such assistants as it deems necessary. Further, to facilitate this work, it shall be the duty of the Secretaries of the Sections, during each Annual Session, or as soon thereafter as practicable, to deliver to the Editor, or his duly appointed agent, all such proceedings, reports, addresses, papers and other documents, as may have been ordered for publication. All money received by the Council, or its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Society, and all orders on the Treasurer for disbursements of money in any way connected with the work of publication must be endorsed by the Chairman of the Council and countersigned by the Secretary of the Society. All matters of the Society pertaining to the expenditure of money for other purposes shall be referred, during the Annual Session, to the Council, who shall report upon the same within twelve hours, and if the House of Delegates orders the expenditure of money in connection with said report, the payment shall be made by the Treasurer as provided above. It shall be the further duty of the

Council to hold the official bond of the Treasurer for the faithful execution of his office, annually to audit and authenticate his accounts, and to present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Society during the year, and the amount of all other property belonging to the Society under its control, with such suggestions as it may deem necessary.

In the event of a vacancy in the office of the Secretary of the Society, or the Treasurer, the Chairman of the Council shall fill the vacancy ad interim until the next meeting of the Council.

SEC. 7. Each Councilor shall be organizer, peacemaker and censor for his District. He shall visit each county in his District at least once a year for the purpose of organizing component societies where none exist, inquiring into the condition of the profession, and for improving and increasing the zeal of the County Societies and their members. He shall make a report of his doings and of the condition of the profession of each county in his District to the Council at its Annual Meeting in January. The necessary traveling expenses, not to exceed twenty-five dollars annually, incurred by such Councilor in the line of duties herein imposed, may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Society.

CHAPTER IX.—COMMITTEES.

SECTION 1. The standing committees shall be as follows:

A Committee on Scientific Work.
A Committee on Public Policy and Legislation.
A Committee on Nominations.
A Committee on Arrangements.

SEC. 2. The Committee on Scientific Work shall consist of the President, who shall be the Chairman, the Secretary, and the Chairmen and Secretaries of the Sections. It shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates, or of the Society, or to the provisions of the Constitution and By-Laws. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the Society as nearly as practicable.

SEC. 3. The Committee on Public Policy and Legislation shall consist of three members appointed by the President. Under the direction of the House of Delegates it shall represent the Society in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence of the profession to promote the general influence in local, state and national affairs and elections.

SEC. 4. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of Chapter VI. of these By-Laws.

SEC. 5. The Committee on Arrangements shall consist of five members of the County Society in the territory in which the Annual Session is to be held, and shall be appointed by the President of the Society. It shall, by committees of its own selection, provide suitable accommodations for the meeting-place of the Society, the House of Delegates, the Council and the Sections, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program.

CHAPTER X.—ASSESSMENTS AND EXPENDITURES.

SECTION 1. An assessment of **two** dollars per capita on the membership of the Component Societies is hereby made the annual dues of this Society. The Secretary of each County Society shall forward its assessment with a roster of all officers and members to the Secretary of this Society as soon after the annual meeting of the County Society as possible; not later than December 31st.

SEC. 2. Any County Society which fails to pay its assessment, or to make the reports required, on the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Society or of the House of Delegates until such requirements have been met.

SEC. 3. All motions or resolutions appropriating money shall specify a definite amount for the purpose indicated, and must be approved by the Council.

CHAPTER XI.—RULES OF CONDUCT.

The principles set forth in the Code of Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XII.—RULES OF ORDER.

The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XIII.—COUNTY SOCIETIES.

SECTION 1. All County Societies now in affiliation with the State Society or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, or with the code of ethics of the American Medical Association, shall, upon application to the Council, receive a charter and become a component part of this Society, subject to the conditions described in Sec. 4 of this Chapter. A roster of its officers and members and the annual dues of $2 for each member must accompany the application.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws a medical society shall be organized in every county in the State in which no component society exists.

SEC. 3. Charters shall be issued only upon approval of the Council, and shall be signed by the President and Secretary of this Society. The Council shall have authority to revoke the charter of any Component Society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws or the Code of Ethics of the American Medical Association.

SEC. 4. Only one Component Medical Society shall be chartered in any county. Where more than one County Society exists, friendly overture and concessions shall be made, with the aid of the Councilor for the District if necessary, and all of the members brought into one organization. In case of failure to unite an appeal may be made to the Council, which shall decide what action shall be taken.

SEC. 5. Each County Society shall judge of the qualifications of its own members; but, as such societies are the only portals to this Society and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree in writing over his own signature to practice, non-sectarian medicine only, and to sever all connections with sectarian colleges, societies and institutions, shall be entitled to membership. Before a charter is issued to any County Society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

SEC. 6. Any physician who may feel aggrieved by the action of the Society of his County in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council.

SEC. 7. In hearing appeals the Councilor or the Council may admit oral or written evidence as in his or its judgment will best and most fairly present the facts. Efforts at conciliation and compromise shall, however, precede all such hearings.

SEC. 8. When a member in good standing in a Component Society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the County Society into whose jurisdiction he moves.

SEC. 9. A physician living near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each County Society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. At the first meeting after JANUARY 1ST, due notice having been given, each County Society shall elect annually a delegate or delegates to represent it in the House of Delegates of this Society in the proportion of one delegate to each FIFTY members or major fraction thereof (see By-Laws, Chapter IV., Sec. 1.) The Secretary of the County Society shall immediately send the list of its delegates to the Secretary of this Society.

SEC. 12. The Secretary of each County Society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall annually furnish an official report containing such information, upon blanks supplied him for the purpose, to the Councilor of his District by the **first day of January.** In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his report shall be certain to account for evey physician who has lived in the county duing the year.

CHAPTER XIV.—AMENDMENTS.

These By-Laws may be amended at any Annual Session by a majority vote of all the Delegates present at that Session after the amendment has laid upon the table for one day.